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The Danger of Folic Acid in Multivitamin Preparations*

By

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THE medical profession has a traditional infatuation with therapeutic agents which are dramatic in action or effectiveness. How did they earn the name "physician" if not from the use of purgatives to provoke activity. In the good old days, there were not many agents which could be relied upon to give the patient a good shaking up without danger of killing him. Physic was the old reliable and human nature being what it is, you can bet that many a patient was physicked by his physician without his having been constipated.

Today, we are in much better condition than our forebearers were. The purges have fallen into disuse, even into disrepute now that everyone knows they are not so harmless after all. It is possible to kill a patient with appendicitis by treating his bellyache with caster oil. But in their place we have dozens of other drugs equally effective, equally dramatic, and equally abused by the intellectual descendants of the whiskery misanthropes who used to prescribe tincture of jalap. We have antibiotics which can miraculously cure infections when properly used; they can also cause aplastic anemia, deafness and polyarteritis. We have steroid hormones which can relieve the pains and disability of arthritis or restore the platelet count in thrombocytopenic purpura; they can also cause decalcification of bones and pathologic fractures, perforation of peptic ulcers, insanity, diabetes and beards on women. We have blood transfusions which transmit malaria. We have antimalarials that cause hemolytic anemia. We have hematinics that are goitrogenic. And we have thyroid inhibitors that cause agranulocytosis. We have the tranquilizers; but the people who need them most often use them to commit suicide. It seems a pity that none of these dramatic drugs is without its deadly flaw.

One use of these modern-day miracle drugs is conditioned by a somewhat different attitude from that of the ancient physician who used to describe a physic. He was absolutely certain of the dramatic effectiveness of his prescription. Today we are willing to settle for something less. When we prescribe a miracle we often have no assurance that a miracle will issue forth. We give antibiotics for undiagnosed fevers and blood transfusions to patients who seem to need a tonic. We might better give a physic; it would be safer and considerably less expensive. But there seems to be an idea that a drug which is tremendously effective when properly prescribed may still be a little bit effective in any case. But, finally, the treatment does contain somewhat the value of the nonspe-

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cific purgative. The patient is impressed: "My doctor is giving me antibiotics." or "He said I have to have a blood transfusion." The patient has begun to share the reverence which his doctor holds for these great scientific achievements.

The vitamins may be a little different because harmless, or so we think. Here is another group of dramatic drugs. Scurvy, sprue, beri-beri, pellagra, rickets, pernicious anemia: they are cured as if by magic when the lacking vitamin is given. Is it any wonder that millions of dollars of vitamins are given each year in the United States? Well, human nature being what it is, it isn't any wonder. But those millions of dollars of vitamins are not given to treat scurvy, sprue, beri-beri, rickets and pernicious anemia. They are given because we regard them as safe and because it seems sensible to be sure that the patient is not suffering from a "hidden or subclinical nutritional deficiency." Many patients complain of fatigue or weariness; they feel rundown. When they do not have any signs of illness—perhaps a mild anemia—the physician wonders what to treat. "Subclinical vitamin deficiency" offers an attractive hypothesis, but which of a dozen vitamins is almost lacking? We can't be sure and there is the reason for the multivitamin capsule. Give them all. The patient gets the one he needs along with all the rest and no harm done.

Now a few case reports by way of illustration. Back-handed illustration, of course, because the point of my presentation is to reiterate that the multivitamin capsule is not a harmless dietary supplement. Because of a peculiar quirk of metabolism we can sometimes hurt our patients with folic acid.

Case 1

A retired officer went to the Outpatient Clinic of a university hospital with mild gastrointestinal complaints and a history of tiredness. A multivitamin capsule containing folic acid was prescribed, and this improved his symptoms. However, obout a year later he came to a military hospital complaining of difficulty in walking and incontinence of urine occasionally. Physical examination revealed evidence of spinal cord disease—the posterolateral columns—and tests were made for pernicious anemia. He was not anemic and his bone marrow was not megaloblastic, but when he was given by mouth a small dose of radioactive B_{12} he demonstrated the characteristic inability to absorb the vitamin.

Conclusion: the patient had pernicious anemia when he went to the University Clinic. The folic acid in the multivitamin capsules improved his symptoms but permitted the disease of his spinal cord to progress until he had difficulty in walking and holding his water. Had he not been given folic acid the symptoms would have persisted and the development of obvious anemia would have lead to earlier diagnosis.

Case 2

A 62-year-old woman visited her physician in 1941 and a diagnosis of pernicious anemia was made on very good grounds: sore tongue, ataxia, decreased vibratory sensation, sluggish tendon reflexes and characteristic hematologic changes. Until 1952 for a period of 11 years the patient received weekly injections of liver extract or vitamin B_{12} from her physician. She had improved greatly when her treatment was begun; both the anemia and the early changes of the central nervous system disappeared. In August 1951 a complete re-examination showed her to be in good condition. In 1952 she moved to another city and treatment thereafter was irregular. Her new physician gave her only an occasional injection of vitamine B_{12} and none at all during the past two years. During these two years she was given two kinds of multivitamin pills, one containing 0.1 mg. of folic acid, the other containing 0.25 mg. The patient's ataxia became increasingly severe until she became unable to walk. Now, at the age of 80, she was admitted to a military hospital. She was not anemic and her bone marrow was not megaloblastic. When tested with radioactive B_{12} she demonstrated a characteristic inability to absorb the vitamin.

Conclusion: the patient has pernicious anemia which was completely controlled by adequate administration of vitamin B_{12}. In her case the substitution of folic acid for vitamin B_{12} did not permit reappearance of anemia but the spinal cord changes progressed in a devastating fashion.

These patients both had pernicious anemia, a disease which results from inability to absorb vitamin B_{12}. The disease is progressive unless it is treated. The anemia gets worse, and the changes in the central nervous system cause more and more disability. But these are two quite different reactions to the vitamin deficiency: the anemia can be corrected by therapy while the locomotor ataxia and lack of sphincter control are permanent and irreversible. The central nervous system changes can only be prevented by timely administration of vitamin B_{12}—and this usually means injection of B_{12}.

Now consider the metabolic quirk that makes a poison of folic acid. If a patient with pernicious anemia is given folic acid instead of vitamin B_{12}, his anemia is corrected, but the central nervous system changes continue to progress, in fact they may be accelerated. Folic acid—which is also a vitamin—can substitute for vitamin B_{12} in the bone marrow where blood cells are made, but it cannot in the same way satisfy the requirement of the central nervous system. Without vitamin B_{12} the nerve fibers of the posterolateral columns of the spinal cord gradually die.

Pernicious anemia is not a common disease. It occurs rarely in young people, more often in the middle aged and elderly. The onset is insidious and the early symptoms are nonspecific. It is an easy diagnosis to miss. It is easy to decide that the peevish old lady who complains of fatigue should be given a "tonic" of some sort, perhaps vitamin pills. But wait a moment. Once in a while, the peevish old lady has pernicious anemia and because of the folic acid in her vitamin pills she may spend the rest of her life incontinent of urine and feces, fast in a wheelchair. This doesn't happen often—perhaps only once in a million or once in a hundred thousand. In the United States it may happen to a couple hundred people a year. But the result is devastating and permanent.

The problem is not a large one in terms of numbers but fortunately it is a problem that has a solution: *omit the folic acid from multivitamin preparation.* Realizing that folic acid is dangerous to some of our citizens, it is truly in the public interest to require that this vitamin not be dispensed in any combination. Such a requirement would not deny folic acid to anyone who needs it or who thinks he needs it. But the physician must think twice before he prescribes folic acid. He must separately consider the requirement for folic acid, a potentially dangerous vitamin; and then, deciding that his patient needs folic acid, he would prescribe it.

Members of the televison audience who harken to the commandment of the announcer, "Go at once to your druggist and demand Lack-a-Day rejuvenation formula," would receive from the druggist a formula free of folic acid.

The Armed Services have taken this problem under consideration, and a tri-service committee has recommended that folic acid be eliminated from the multivitamin preparations in the present formularies. It may take a little while for changes to be made. Meanwhile, remember that the vitamin pill is not always a harmless tonic.

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Current Trends in the Indications for Surgery in Peptic Ulcer*

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THE general indications for the surgical treatment of peptic ulcer have been well established for many years. These are obstruction, perforation, hemorrhage, intractability and, in gastric ulcer, the possibility of carcinoma. In the individual case, however, particularly the patient with hemorrhage or intractable ulcer, considerable difference of opinion may exist as to the proper treatment. Usually these differences are based on a careful consideration of the individual patient, but, at times, the proponents of non-operative or operative treatment seem interested in something other than proper therapy based on a knowledge of the natural history of the disease. A reappraisal of the indications for surgery in the treatment of peptic ulcer may be of interest, therefore, even though no disagreement exists for the general indications.

It should be emphasized that over 70 percent of the patients with peptic ulcer can be treated satisfactorily by a medical regimen, so that surgical intervention is considered only for the complications of peptic ulcer. To require surgery, these complications will either endanger the life of the patient or so alter his daily living as to make him a chronic invalid.

A survey of our last 100 operations for peptic ulcer showed that the indications for operation were as follows: obstruction 15, perforation 10, hemorrhage 34, intractability 39, and the inability to exclude carcinoma in a gastric ulcer 2. The review of the indications for operation which follows is based partially on these cases.

Obstruction

Obstruction of the pylorus or duodenum secondary to ulcer may be due to inflammatory reaction and edema or to scar tissue. This is an over-simplification, as such factors as spasm may contribute to the obstruction, but basically edema and scar are the underlying causes. In the patient with obstruction secondary to ulcer, the necessity for operation will therefore be dependent on the proportion of the obstruction due to scar tissue, as the inflammatory reaction will almost always subside with non-operative therapy.

Although the history and roentgen findings may be of some help in differentiating whether obstruction is due primarily to scar or to edema, a therapeutic trial will be of considerable help in solving the problem. Bed rest, sedation, antispasmodic medication, intravenous alimentation and constant nasogastric suction will relieve the obstruction due to edema in the majority of patients within three to five days. Should the obstruction persist, operation will probably be necessary. Obstruction associated with other complications, particularly hemorrhage, is a definite indication for surgical intervention. In obstruction due to duodenal ulcer, gastric ulcer may also be present because of the antral stimulation and gastrin production.

Futile persistence in prolonged non-operative treatment of pyloric obstruction will result in increased morbidity and possibly increased mortality after the inevitable operation. Longstanding negative nitrogen balance and recurring electrolyte disturbances

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make the patient less able to tolerate an operative procedure. When the necessity for operation is established, therefore, surgery should not be delayed unduly.

Perforation

The consensus of surgeons is fairly uniform in regarding perforation of a peptic ulcer as an indication for immediate operation with three exceptions. These are: (1) The patient who is seen a considerable time after perforation and is moribund or rapidly approaching a terminal state, (2) The patient with very serious associated disease which contraindicates operation, and (3) The occasional patient in whom the ulcer appears to have sealed off. Infrequently, instead of opening into the free peritoneal cavity, perforation into an adjacent structure such as the gall bladder, common duct or colon may occur. This is obviously a definite indication for operation.

The work of Seeley and Campbell has disturbed the general acceptance of perforation as an indication for operation to a certain degree. These surgeons reported a series, mainly consecutive, of 158 patients with perforation treated by a non-operative regimen. Seven deaths occurred, five of these in patients who would not be considered candidates for operation according to the criteria as outlined above. Their corrected mortality was therefore 1.3 percent. In addition, Seeley and Campbell found in a collected group of 1622 operated cases a mortality of 8.7 percent, whereas in a collected non-operated group of 784 operable cases, the mortality was 4.5 percent. These statistics, and the various advantages enumerated by these authors, suggest that thoughtful consideration should be given the non-operative treatment of perforated peptic ulcer, and emphasizes the desirability of a randomized series treated by the two methods in the same institution. In spite of the intriguing aspects of the non-operative treatment of perforated ulcer, we continue to employ immediate operation in the absence of the contraindications noted, and believe this conforms with the practice of the majority of surgeons.

Hemorrhage

Most of the apparent disagreement concerning massive hemorrhage from peptic ulcer as an indication for operation has been considered to exist as medical versus surgical competition, and has even been presented in this light as the subject of jokes and cartoons in professional journals. No surgeon would be foolish enough to state that every patient with severe bleeding from a peptic ulcer should be operated upon, but most surgeons will agree that these patients are surgical problems. The basic decisions to be made are whether or not the patient needs operation and at precisely what point in his illness. These decisions are the responsibility of the surgeon, and however welcome the helpful advice of a competent internist or gastroenterologist, who will share in the care of the patient, this responsibility cannot be transferred

Considerable confusion has resulted from two factors: the comparison of the results of series of medically treated and surgically treated patients and the lack of uniform criteria of massive hemorrhage. In many institutions, the medically and surgically treated patients cannot be compared as the surgically treated group represents only those patients who have failed to respond to non-operative measures. Unfortunately, the latter at times will be patients who have continuously or repeatedly bled, sometimes over a period of several days, and who then are extremely poor operative risks because of persistence in therapy which was obviously futile hours or even days before.

The criteria constituting massive hemorrhage from peptic ulcer, as stated in the various studies, usually include a time limit within which the bleeding occurred, the degree of shock, and some laboratory evidence of the amount of blood loss. The bleeding will have taken place within five to seven days; fainting or a blood pressure of less than 90 systolic will be present; the hemoglobin less than 8 to 9 grams, the hematocrit less than 20-25 percent, or a red cell mass less than 60 percent of calculated normal are about the average levels established by these

investigators. The establishment of uniform criteria for massive hemorrhage from peptic ulcer would be of great value in comparing the excellent studies which have appeared.

The indications for operation in the individual patient who has acute massive hemorrhage are not the same for all surgeons who have been particularly interested in this problem. For example, Stewart, Cosgriff and Gray treat their patients with acute massively bleeding peptic ulcer by immediate blood replacement and early gastric resection if the following criteria are met: (1) gross bleeding within a week, (2) a measured total red cell mass of less than 60 percent of the expected normal, (3) reasonably good clinical evidence for the diagnosis of peptic ulcer. Under these criteria, 193 patients had 196 operations with a mortality of 13 percent. In contra-distinction, Bowers and Gompertz admit all patients with a bleeding ulcer to the medical service, to be followed by the surgeon. Appropriate therapy is given, including blood transfusion and hourly feeding. Their indications for emergency operation are: (1) hemorrhage associated with obstruction, (2) rapid recurrent bleeding while on therapy, (3) gastric ulcer, especially if a possibility of carcinoma exists, (4) certain massive bleeding episodes especially in the aged, and (5) continuing hemorrhage after proper replacement and neutralization therapy. In 517 bleeding episodes in 434 patients, only 20 emergency gastric resections were required, with a mortality of 15 percent. Ten deaths occurred in the 414 patients treated medically; 125 subsequently had elective gastric resection with two deaths. Unfortunately, the magnitude of bleeding was not defined in these patients.

Confirmatory evidence for either early or delayed operation is ample in the recent literature. Custer, Boyd and Miller on the basis of their experience support Stewart's contention that early operation is best. Gardner and Baronofsky and Weber, Schroeter and Riddell find it is better to delay operation. Elliott, Hartle, Marshall and Zollinger attempted to divide their patients into those who would stop bleeding and respond to transfusions and those who would not. Massive hemorrhage in 262 patients was treated intensively and the patient evaluated frequently. Seventy-two patients did not respond and either had emergency operation or bled to death. In an analysis to determine what might indicate the patient who will not respond to therapy, age, sex, race, history of prior hemorrhage, history of melena or hematemesis, initial hemoglobin level, and rapidity of blood loss before treatment were found to be of no value. Clinical shock was of some value in prognosis as only half of the patients with shock responded. Only half the patients with gastric ulcer responded whereas two-thirds of those with duodenal ulcer did. Those who required over six pints of blood had less than 50 percent chance of response. Over 70 percent of those who were going to respond did so within 24 hours.

The decisions to be made, as noted above, in the patient with acute massive hemorrhage from peptic ulcer are: Does the patient need operation and if so, when. These decisions must be based on the information obtained in the examination of the patient and on the response of the patient to proper treatment. The surgeon needs to know the extent of blood loss and replacement, to determine if bleeding is continuing and how rapidly, to know how well the patient has tolerated the hemorrhage. These questions can only be determined by frequent observation of the patient. Hematemesis or melena, the signs of impending shock, decrease of the hemoglobin or hematocrit during blood replacement all indicate continued bleeding and a failure of response. A number of arbitrary rules have been formulated to define more accurately this failure of response. Most frequently mentioned is the eight hour rule: If the patient requires more than one unit of blood every eight hours to remain stabilized, bleeding is continuing and operation will be required.

Whatever the criteria used to indicate the necessity of operation, when the decision to employ surgical treatment is made, prompt operation is advisable, consistent with the availability of blood for rapid replacement.

Little can be gained, and much may be lost, by further delay.

In addition to acute massive hemorrhage from peptic ulcer as a primary indication for surgery, other types of bleeding may require operation, either electively or occasionally as an emergency. Also, other factors may weigh the decision concerning operation, although not of themselves primary indications. Without a detailed discussion of these latter factors, the following outline is suggested as the indications for operation in the treatment of bleeding peptic ulcer:

(1) Massive continuing hemorrhage with little or no response to transfusion.

(2) Continuing hemorrhage requiring continuous or repeated blood transfusion to attain stabilization of the patient. Whether the amount of blood required is set at one unit per eight hours, five units per twenty-four hours, or at other levels, the important factor is the failure of the bleeding to stop.

(3) Recurrent bleeding during treatment, the stop-start type of bleeding, a group in which the patient can be expected to tolerate very poorly the rebleeding episode and to withstand even less well each additional recurrence of bleeding.

(4) Continuing slow bleeding, manifested by tarry stools and gradual decrease of the hematocrit, while under therapy, which may require a unit of blood two or three times each week.

(5) Recurrent bleeding at long intervals which requires hospitalization and transfusion. Prompt cessation of the hemorrhage usually occurs with treatment. One episode will seldom necessitate operation; two episodes if associated with other indications or three episodes of such bleeding alone should strongly suggest consideration for surgery.

(6) Factors which may influence the decision regarding operation in any of the above categories.

a. gastric ulcer or ulcer in the second portion of the duodenum which tend to respond less readily to treatment.

b. the possibility of carcinoma in a gastric ulcer.

c. bleeding ulcer associated with obstruction as the bleeding tends to continue in these patients.

d. the physiologically older age group, particularly with associated disease, who tolerate blood loss and shock poorly.

e. a history of previous complications such as perforation or a long period of intractability.

f. cortisone induced ulcer in which bleeding tends to be massive and rapidly fatal.

Intractability

Probably more operations are performed for peptic ulcer under this indication than any other. Intractability can be an extremely elastic indication for operation and is difficult to define so as to include all those who need operation and to exclude all those who will benefit little from surgery. In the simplest concept, one might consider three categories: (1) intractable pain, (2) intractable ulcer, and (3) the intractable patient with peptic ulcer.

Intractable pain due to peptic ulcer is an infrequent occurrence, as almost uniformly the pain of peptic ulcer will respond to proper therapy. Occasionally, however, a patient will be seen whose pain persists in spite of continued treatment. These patients will usually have either a channel ulcer or a posterior penetrating ulcer. Persistence in medical therapy is not advisable after a reasonable trial, and operation is indicated not only for relief of the pain but because of the frequency with which complications can be expected.

Intractable ulcer includes those patients who continuously or recurrently have active peptic ulcer except when they are under the most rigidly controlled regimen of rest, diet, and medication. It includes also those patients Moore, Peete, Richardson, Erskine, Brooks and Rogers defined as having "progressive virulent ulcer disease" who are prone to recurrence of the ulcer and also to develop the complications of ulcer. These patients are easily recognized in retrospect but will require careful selection during the early phase of their disease.

The intractable patient with peptic ulcer

includes the patient who cannot or will not follow an ulcer regimen, who finds that treatment interferes with normal living almost as intolerably as the ulcer symptoms, who cannot control the psychogenic factors of his personality, who lapses into dietary or alcoholic indiscretions after each remission of the ulcer, or who for similar type reasons does not do well. Surgery achieves the poorest results in this group of patients and should actually rarely be performed for this indication. Considerable study is needed in this particular group in order to separate the few who will do well after operation from the many who will not.

Infrequently, a patient may be seen who has bizarre symptoms which may mimic other disease, or who may even have fairly typical peptic ulcer symptomatology, but repeated roentgen study fails to identify a causative lesion. This is particularly true for some of the small, penetrating gastric ulcers and for postbulbar ulcer. Exploratory operation will be needed both for diagnosis and proper treatment.

Emphasis must be placed on the inadvisability of prolonged medical therapy in the patient who will obviously need operation. Procrastination in this situation can only lead to the inevitable life-endangering complications, and equally important, result in more difficult technical problems at operation which are reflected in an increased morbidity and motality.

Gastric Ulcer

The indications outlined above apply relatively equally to duodenal or gastric ulcer, but in the latter lesion, the possibility of carcinoma in the ulcer adds a factor which is not of practical consideration in duodenal ulcer. The possibility of malignant change in a chronic gastric ulcer is an interesting although somewhat academic question which has attracted considerable comment. Of far greater importance is the differentiation of benign and malignant chronic gastric ulcer. Actually, the majority of patients who require operation for gastric ulcer have another indication such as hemorrhage, and in only about 15 percent will the inability to exclude carcinoma necessitate surgical intervention. A second important consideration is the percentage of patients thought to have benign gastric ulcer who ultimately prove to have an ulcerated carcinoma. Cain, Jordan, Comfort and Gray, for example, found in a five year follow-up study of 414 benign appearing gastric ulcers which had been treated medically, cancer was present or developed in 10.4 percent. Welch and Burke in 367 patients with a diagnosis of benign gastric ulcer found 7.2 percent to have carcinoma.

A number of studies, including the two just cited and also those of Grimes and Bell and Smith, Boles and Jordan, have demonstrated the impossibility of differentiation of benign from malignant gastric ulcer in the problem cases by any method other than microscopic examination of the lesion. It seems apparent, therefore, that in this group of patients a period of treatment in the hospital, arbitrarily set at two weeks, should be followed by operation unless complete or nearly complete healing has occurred. Even in the latter instance, frequent, repeated re-examination will be necessary. Should any modifying factor exist, such as a very large ulcer, greater curvature ulcer, achlorhydria, or suggestive cytology, even this interval should not be allowed to elapse.

Other Types of Peptic Ulceration

Peptic ulcer in infancy and childhood is rarely encountered but may be manifested by any of the complications of ulcer seen in adults. According to Gross, severe bleeding or perforation is more common during infancy while obstruction is more apt to appear in older children. Surgical intervention will be necessary for perforation or obstruction, and may be required for hemorrhage.

Ulcerogenic tumors of the pancreatic islet cells have been defined as a clinical entity, largely by the work of Ellison. These patients have a fulminating and frequently

fatal course, with rapidly progressive, atypically located ulcer recurring in spite of adequate medical and surgical therapy. Characteristically in these patients the gastric secretions at night are excessive frequently exceeding two liters containing over 100 meq. of free hydrochloric acid. The necessity for searching for these tumors in operations for marginal or recurrent ulcer is obvious.

Stress ulcer is a term which has apparently been used to indicate the development of peptic ulcer or the reactivation of a previous ulcer under somewhat similar circumstances such as after operation or trauma, with severe burns (Curling's ulcer), with neurologic lesions (Cushing's ulcer), or after cortisone administration. Although the etiology is not entirely clear-cut in each instance, the evidence suggests that peptic ulcer may not be due to the same cause in these lesions. Without becoming involved in this aspect, it is apparent that peptic ulceration in some of these patients will be little more than part of a terminal illness, and should a complication such as bleeding from the ulcer develop, operation cannot be performed because of the primary disease or trauma. In other cases, awareness of the possibility of peptic ulcer is important, as proper surgical therapy may be life saving.

Portacaval shunt procedures for portal hypertension have apparently an increased incidence of peptic ulceration afterward. We have collected a series of 534 reported shunt procedures and found the incidence of peptic ulcer during the follow-up period to be 5.4 percent, with a range from 2.0 to 18.6 percent. A tendency to bleed is apparent and a major diagnostic problem develops in these patients if hemorrhage from the peptic ulcer later occurs. An accurate diagnosis of the source of bleeding is obviously extremely important as treatment of recurrent esophageal varices will differ considerably from that of a duodenal or gastric ulcer. The indications for operation are altered only by the degree of impairment of liver function.

Barrett's ulcer is a peptic ulcer in the lower part of the esophagus which is lined by mucosa resembling that of the stomach. This congenital anomaly frequently does not cause any symptoms until later in life, most often past the age of 50 years. An ulcer may occur at this time for no known reason and the complications of any gastric ulcer may develop, particularly penetration or hemorrhage. Identification of the bleeding site is obviously necessary, as exsanguinating hemorrhage may occur. Medical therapy may suffice but these complications may require operation. It should be emphasized that this lesion is probably much more common than has been generally recognized.

Hiatal hernia is frequently complicated by peptic esophagitis which may cause considerable difficulty but seldom perforates or bleeds massively, although either may occur. Evidence suggests, however, that the herniated gastric pouch may have an increased susceptibility to peptic ulcer, which in turn may manifest any of the usual complications of gastric ulcer. The latter type of ulceration may be difficult to diagnose, and as the complications may be serious, adds further to the indications for repair of hiatal hernia.

Summary

In reviewing the generally accepted indications for operation for peptic ulcer, it is apparent that some disagreement exists within the broadly defined indications. Three points deserve emphasis:

(1) In intractability, investigations should be continued to select these patients more precisely.

(2) Once the indications for operation are recognized in a patient, procrastination is detrimental to the welfare of this patient.

(3) In the selection of patients for operation, no set of rules can be substituted for mature surgical judgment and a thorough knowledge of the natural history of the disease.

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ARMED FORCES DAY—MAY 21

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Changing Concepts of Nutrition Following Subtotal Gastrectomy*

By

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(With two illustrations)

POOR nutrition as an aftermath of a subtotal gastrectomy for peptic ulcer in recent years has become of great concern to all physicians. An increasing number of patients as well as physicians, suffering from chronic ulcer disease, are reluctant to accept gastric surgery for relief of their complaints—not from a fear of death or of recurrent ulceration but rather from the impression that a new set of symptoms will replace their old ones.

The purpose of this discussion is to assemble the pertinent recent data from the literature to illustrate the magnitude of this problem.

Significant loss of weight may be used as a rough measure of disturbed nutrition. Ellison[1] reports that, on a personal followup of 290 post-gastrectomy patients, 2 out of 3 were below their ideal weight. One in 3 had a deficit greater than 10% of their minimal ideal weight. In addition 7 of 100 patients who had undergone an 85% resection were unable to work, not because of recurrent ulceration but rather from weakness due to malnutrition.

Roth, Becker, Vine and Bockus[2] analyzed the later results of 100 patients, following a subtotal gastrectomy. Again 2 out of 3 patients were below their ideal weight and 10-15% were disabled from dumping, nutritional disturbance, and other manifestations than recurrent ulceration.

Weir and Bennett[3] found that of 443 patients who had a partial gastrectomy, dumping phenomena was noted in 103 but was only of major importance in 15 cases. No mention is made of weight changes or nutritional disturbances.

Jordan, Bolton and DeBakey[4] report on an analysis of 184 patients in which 65 of 141 patients had post-gastrectomy symptoms. Only 15 of the 141 had lost weight, associated with difficulty in ingesting a satisfactory diet.

Morey and Plummer[5] analyzed 104 Veterans Administration (VA) patients following subtotal gastrectomy. They found that more than half of those followed (74) had one or more of the complications of post-gastrectomy syndrome.

Rumball and Hasset[6] reviewed 125 VA patients by interview, physical examination, and laboratory tests, showing 65 (52%) had lost weight from their average weight prior to surgery and were below their standard weight according to Metropolitan Life Insurance Company standards. Kelosis was noted in 32 (25%), peripheral neuropathy in 18 (14.8%). Fourteen (11.2%) stated that they could not work because of post-gastrectomy weakness and symptoms.

These are representative reviews which should at least make us reflect upon the seriousness of the problem.

To attempt to answer the question as to why nutritional disturbances occur, we will review investigations of absorption and digestion.

Robins, Robertson and McIntosh[7] studied 10 unselected patients who had the conventional Polya gastric resection and who were considered a fair to good result and did not

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TABLE 1

FECAL FAT AND NITROGEN STUDIES—BILLROTH II
(Robins, Robertson and McIntosh)

Patient	% Weight Loss or Gain	Fecal Fat %	Fecal Nitrogen GMS.	Average Daily Caloric Intake
1	−12.3	8.3	1.9	2657
2	−10.1	3.9	2.8	2826
3	− 9.3	5.8	2.5	3175
4	− 3.9	3.6	1.7	2066
5	0	5.8	2.0	2700
6	+ 1.9	6.0	2.0	3037
7	+ 3.3	10.8	2.3	2554
8	+ 5.3	2.8	2.0	2711
9	+ 5.6	5.7	1.2	2576
10	+ 6.5	11.7		2716
Average		6.4	1.9	

manifest dumping. Caloric intake was measured and careful balance studies carried out. Table 1 shows the results of this study. The average of 6.4% fat excretion is borderline but above the average of no more than 5% in the normal individual. The nitrogen excretion of 1.9 grams is average normal; however, anything above 2.0 gms/d is abnormal. Three patients were at the upper limits of normal and 3 patients were in the abnormal range above 2 gms./d. The authors concluded that there appears to be a definite tendency to an increased fat and nitrogen excretion in the post-gastrectomy patient.

Since balance studies are tedious and unpleasant, and since the advent of radioisotope tagged meal studies for absorption, let us see what these studies tell us.

Ruffin[8,9] and his associates have carried out several investigations on this subject. A tagged lipid is given orally and blood samples are collected at hourly intervals. The blood levels of the isotope are calculated in percentage of dose given orally. At 4, 5 and 6 hours the average of these samples should be 8% or more. Anything below 8% is abnormal. Figure 1 reveals the normal curves for both Triolein and Oleic acid tagged with I-131. Table 2 reveals Ruffin's results of radioactive labeled Triolein studies in patients who had had a subtotal gastric resection. Of 162 patients (subtotal gastrectomies) so studied 67 (41%) showed normal results, 46 (29%) revealed moderate impairment, (between 5-8%) and 49 (30% patients had marked impairment (below 5%).

It is of interest to note that by tagging a fatty acid, oleic acid, there appears to be normal absorption. There is in contrast to the findings when a neutral fat, triolein, is used. (See Fig. 2) One gets similar findings in individuals with a diseased pancreas and,

TABLE 2

RADIOACTIVE LABELED TRIOLEIN STUDIES
IN BILLROTH II RESECTION

Normal (8%+)	Moderate Impairment (5–8%)	Marked Impairment >5%	Total Patients
67 (41%)	46 (29%)	49 (30%)	162

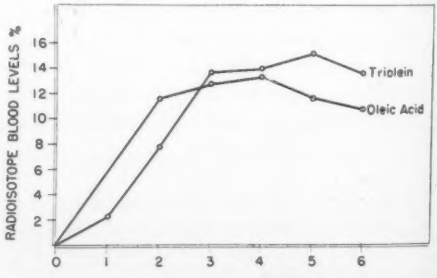

FIG. 1. Radioisotope blood levels. Typical curves—normal control.

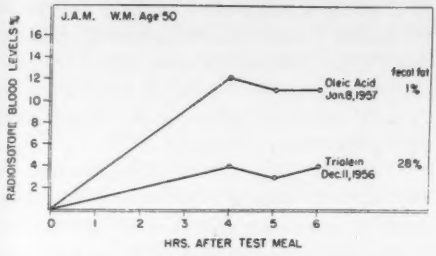

FIG. 2. Radioisotope blood levels. Subtotal resection.

therefore, this suggests that the defect is not one of absorption of fats but rather one of digestion of fats. This may be due to the lack of bile salts and pancreatic enzymes to act in the small intestines or a diminished secretion of these substances.

A few comments probably should be made at this point as to other factors that have been brought to light as being associated with malnutrition in the post-gastrectomy patient. Since the stomach is a vital organ in hematopoiesis (intrinsic factor) and since the duodenum is the area from which iron is believed to be absorbed to the greatest extent, one should suspect disturbances in the hematopoietic system.

Anemia after subtotal gastrectomy is common. One author[10] reported as high as 80%. In our analysis[6] of 125 patients iron deficiency was found in 35%. No patient with megaloblastic anemia was discovered. Smith[11] investigated iron absorption, using radioactive iron tracer studies. Five patients out of 6 who had a Billroth II type of subtotal resection showed decreased iron absorption. Iron absorption in the patients with Billroth I type of resection was normal.

Vitamin B_{12} absorption also seems to be impaired after a Billroth II resection. McLean[12] found 9 patients with megaloblastic anemia after investigating 1550 patients who have had a partial gastric resection. Decreased absorption was mentioned but no data was given. Lous and Schwartz[13] at the last meeting of the Danish Surgical Society reported that 7 patients of 37 resected for duodenal ulcer had reduced absorption. Ten of 30 patients resected for gastric ulcer had a reduced absorption. There was a total of 23 patients whose B_{12} labeled Cobalt 60 Test showed a urinary excretion of less than 10% of the ingested B_{12} (Table 3). Eighteen of these 23 patients showed normal absorption of B_{12} after they were given intrinsic factor. None of these patients showed a megaloblastic anemia.

The influence of the secretory function of the stomach has been investigated by Johnson and Welbourn[14] who found that in rats the secretory function was more important that the reservoir function in the maintenance of body weight and hemoglobin. Dogs were studied after total gastrectomy, after esophago-duodenostomy with stomach in situ and after esophago-duodenostomy but gastric secretions drained to the exterior. Body weight, hemoglobin, plasma proteins, fat and nitrogen excretion were studied. The conclusions were that the dogs in which the gastric juices flowed into the duodenum lost less

TABLE 3

VITAMIN B_{12} ABSORPTION—SUBTOTAL GASTRIC RESECTION
(Lous and Schwartz—Copenhagen)

Type of Operation and Ulcer	Normal (10–25%)	Impaired (>10%)	Total
Subtotal Resection—Polya for Duodenal Ulcer	30	7	37
Subtotal Resection—Polya for Gastric Ulcer	20	10	30
Subtotal Resection—Polya Ulcer Site Unknown	15	1	16
Total	65	18 (21.7%)	83

weight and excreted less fat and nitrogen than any of the other groups of dogs. Anemia and hypoproteinemia developed in each group. Gastric secretions therefore are shown to influence nutrition at least in rats and dogs and can be assumed to have a similar influence in man.

We, then, have some answers as to why nutritional disturbances occur. In a significant number of individuals there appears to be a disturbance of fat and protein digestion. In addition absorption of iron and Vitamin B_{12} may be impaired. Methods of studying these abnormalities are available. A high degree of suspicion is helpful when one sees a patient with symptoms who has had a subtotal gastric resection. One does not need to have a Radioisotope Laboratory to actually record these abnormalities.

Prevention. The selection of patients for this operation is most important. (In cases of surgery for bleeding peptic ulcer during the active bleeding stage there is no alternative.) These patients, that for want of a better term have been classified as "intractable," are by far the majority of patients that give us the most trouble after surgery. When we are confronted with such a problem we should ask ourselves, "Does this patient have a peptic ulcer because he is sick, or is he sick because he has a peptic ulcer?" Some patients are better off with episodic ulcer distress than with constant weakness, etc., after subtotal gastric resection.

Zollinger[15] has used body build as an aid in selecting the type of surgery to be done. The asthenic and sthenic individual is selected for either a Billroth I or a vagotomy and gastroenterostomy. A Billroth II type of resection is suggested for the large or obese patient. Doctor Walter Palmer feels that a vagotomy and gastroenterostomy is the choice whenever possible.

The next important factor is the attitude of the surgeon. The surgeon who tells his patient, "I've removed your ulcer, you can now eat anything" will have more patients get into trouble. The patient will discover that he may have dumping and because he has not been warned, this alarms him. Other symptoms may follow, and before long he has a full blown "post-gastrectomy state," the psychosomatic aspect of which is no small part. A well instructed patient is a well adjusted post-gastrectomy patient.

Treatment. (1) A careful explanation of the cause of patient's symptoms should be made clear to him. (2) A total diet of sufficient calories is essential (2500 to 3000 calories). A higher protein and fat content than normal with a lower carbohydrate content is advised; at first give small frequent feedings, while attempting to increase the amounts at meal time. (3) If patients have not learned this already they should be instructed to avoid sweets, avoid liquids with a meal (eat a dry meal), and drink liquids between meals. (4) Additional vitamin C. (5) Addition of B_{12} and iron, not used steadily but intermittently. (6) Resting after meals may be advisable in selected instances. (7) Excesses of coffee, alcohol, and tobacco should be avoided. (8) If steatorrhea is present, Viokase® or Pancreatin® may be helpful.

In spite of these measures there are certain patients who do not improve. We have more to learn concerning this group of unfortunate individuals. Some surgeons feel that making some changes in the mechanics of the gastroenterostomy is helpful. Leonard et al.,[16] have attempted hypnosis in 6 patients. Improvement and rehabilitation were observed in each instance. There appears to be very definite psychological factors in the genesis of dumping and other features of the post-gastrectomy state. If these can be improved by suggestion then the proper element of food as well as the total caloric intake will be able to be utilized.

Conclusion. There are specific indications for surgical intervention in the treatment of benign peptic ulcer. The majority of patients who have had a subtotal gastrectomy fare pretty well and do not manifest outward signs of poor nutrition. A significant number do not do well and it is this group that deserves our serious consideration. One must continually keep in mind that the etiology or

etiologies of peptic ulcer is unknown and that by removal of an ulcer or lowering the gastric acidity by a subtotal gastric resection may not alter the life history of the peptic ulcer patient.

Prevention of post-gastrectomy state may be possible. Treatment, though not always satisfactory, may be helped by the measures outlined. Subtotal gastrectomy is an unphysiological state, producing definite changes that require replacement therapy. A continual search for more acceptable surgical treatment for the disabled chronic peptic ulcer patient must be maintained, better still would be some as yet undiscovered non-surgical treatment.

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Proliferative Reaction of Lymphoid Tissues in Stress and to Pituitary Hormone*

By

JAN MELLGREN AND PER M. LUNDIN

SELYE (1936) demonstrated that stress causes involution of lymphoid tissues, obviously owing to increased secretion of glucosteroids and other corticosteroids. But some observations suggest that the lymphoid tissues also may be stimulated by stress. Thus, already in their first paper on stress, *Selye* and coworkers pointed out that the lymphoid tissue involution could be associated with hyperplasia of reticulum cells and appearance of reaction centres in the lymph nodes (*Selye*, 1950). Similarly, *Dougherty and White* (1947) emphasized that the amount of lymphoid tissue eventually will increase, provided the stimulus remains effective after the acute involution process has come to an end. Several investigators have observed plasma cells in the hemopoietic and lymphoid organs after ionizing irradiation without, however, interpreting the phenomenon as an adaptation reaction (*Wohlwill and Jetter*, 1953).

In 1951 *Mellgren and Pellegrini* (1952) were going to study the effect of protracted stress on the structure of the pituitary in white rats. The stressor agent was a unilateral ischaemic kidney produced by vascular strangulation, and the animals were sacrificed 5 to 15 days after the operation. As expected and intended, all the rats exhibited typical signs of adaptation in the form of increased weights of adrenals and heart, hypertension and circumscribed vascular lesions resembling those seen in periarteritis nodosa. In addition, however, all the rats with an ischaemic kidney were found to have large accumulations of pyroninophil cells in various internal organs, especially in the red pulp and the perifollicular zones in the spleen and lymph nodes but also in the thymus which had undergone involution.

Histologically most of the pyroninophil cells encountered in the spleen and lymph nodes, but very few of those seen in the thymus possessed all the characteristics of mature plasma cells. The rest, which were most abundant in the thymus, were larger, had a bigger oval nucleus, looked rather like reticulum cells and often exhibited somewhat less intense cytoplasmic pyroninophilia than regular mature plasma cells. Accordingly they seemed to be compatible with the immature plasma cells described by *Bing et al.* (1945).

Because the large pyroninophil cells in the lymph nodes and in the spleen always were mixed with mature plasma cells but with hardly any myelocytes or normoblasts, and because the ratio of large pyroninophil cells to mature plasma cells in the cell clusters decreased with time after the operation, all, or almost all, the pyroninophil cells were interpreted as plasma cells.

In those animals with total necrosis of the ischaemic kidney, the signs of adaptation were few and slight and there was little or no plasma cell accumulation.

In a second series of experiments, we subjected intact and hypophysectomized white male rats to various types of maintained or repetitive stress, that is not only to operative renal ischaemia but also to exposure to cold (+2 to +4 centigrades for 4 to 8 days) and to intramuscular injections of 1.5 to 3 per cent formaline solution twice daily for 4 to 12 days (*Lundin et al.* 1954).

These stressed intact rats regularly exhibited hyperplasia of the spleen follicles, in particular of Krumbhaar's perifollicular

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* In an abbreviated form read by Prof. Mellgren at the Massachusetts General Hospital, Boston, Mass., on October 15, 1958, and at The Armed Forces Institute of Pathology, Washington, D.C., on November 18, 1958.

zones, and also generalized infiltration of plasma cells into the lymphoid tissues, especially the spleen pulp, and lymph nodes. Simultaneously the weight of the spleen declined a little, both absolutely and in relation to body weight, and the thymus shrunk. Becoming apparent after 4 days of stress, the reaction culminated between the 8th and 12th day of stress. Consequently this result in all essentials agreed with our first one.

In the hypophysectomized animals stress produced neither plasma cell accumulation nor hyperplasia but instead gave rise to atrophy of the spleen follicles, slight atrophy of the thymus and, occasionally, diminution of the plasma cell clusters of the lymph nodes.

Evidently, therefore, some pituitary factor was involved in the hyperplasia of the spleen follicles and the plasma cell infiltration found after stress. Yet this factor was unlikely to be gonadotrophic because the gonads tend to atrophy under the action of stress. Nor could an ACTH effect be responsible since *Teilum* and others clearly have demonstrated that plasma cells are inhibited by ACTH and cortisone. Considering that thyroxine exerts a stimulatory effect upon lymphoid tissue (see *Gyllensten* 1953 and *Dougherty* 1952) thyrotrophic hormone was a possibility.

However, owing to its anabolic influence on protein metabolism in general, we suspected a priori somatotrophic hormone, STH. Moreover, such a suspicion was borne out by *Selye's* (1951) observation that STH caused hyperplasia of myeloid and lymphatic elements in the spleen and the adrenals and by *Feldman's* (1951) finding that the hormone gave rise to growth of the lymphoid tissues and especially of the perifollicular zones of the spleen.

An STH product which had been extracted from acetone-dried pig pituitaries according to a modification of *Raben and Westermeyer's* (1951) procedure and was supplied to us by courtesy of Messrs. Ferring of Malmö, Sweden, was injected subcutaneously dissolved in physiological saline in a dosage of 50 tibia units twice daily for 7 to 10 days. After this treatment both intact and hypophysectomized rats exhibited growth of the follicles and perifollicular zones of the spleen and plasma cell infiltration. This effect of STH was more pronounced in hypophysectomized than in intact rats (*Schelin et al.* 1954).

This seemed to be a true hormonal effect rather than the result of immunization to the foreign protein in the STH product since practically no such effect was obtained from heat-inactivated STH or from another pituitary protein obtained from the residue after ACTH extraction.

Before long some of these findings were verified by *Dougherty* (1955). He found that STH increased the weight of the spleen and caused clusters of plasma cells to accumulate in the red pulp of the spleen in intact mice. *Cavallero and Pellegrini* (1953) reported similar observations in intact rats.

The interaction between the effects of STH and cortisone upon the infiltration of plasma cells and follicular hyperplasia, especially the spleen was then investigated. (*Mellgren* 1955).

In adrenalectomized animals the well known hyperplasia with enlargement of the perifollicular zones and in addition abundance of plasma cells were observed. Cortisone treatment of adrenalectomized animals counteracted this hyperplasia and in animals treated with greater dosages only few plasma cells were observed. When adrenalectomized animals were treated with cortisone and STH in combination large perifollicular zones and abundance of plasma cells once again were found in a degree increasing with the STH dose. This effect was very evident in the spleen of adrenalectomized rats which had received 10 mg. cortisone and 100 tibia units (about 3 mg.) STH daily for 10 days.

Thus it was obvious that protracted stress in rats causes involutional changes in the lymphoid organs and concurrently produces hyperplasia of the spleen follicles and plasma cell infiltration. Whilst the former effect no doubt is produced by ACTH via cortisone, the latter depends upon or is facilitated by a pituitary factor which could be STH. Other pituitary products could not be ruled out.

however, particularly not thyrotrophin via thyroxin which is believed by the majority of workers to stimulate lymphoid tissue.

Moreover, the mechanism of action of the pituitary factors in these reactions remained unclear. Our conclusions were based only on changes in the mass and microscopical appearance of the lymphoid tissues. But, as *Dougherty* aptly stated in 1952, "Measurement of changes in mass of the lymphatic organs do not necessarily reflect rates of production and destruction of lymphocytes. Although given hormone may enhance lymphocytopoiesis, other hormones may enhance the rate of destruction with the result that no change in the weight would necessarily occur." The same thing can be said about a large variety of other microscopical structures.

Therefore it was essential to analyze in greater detail the lymphoid tissue stimulating action of the pituitary in general and in particular the interaction between TTH and STH on the one hand and the adrenocortical system on the other. Consequently the studies of mass and histology were supplemented with estimations of the nucleic acid content of and, as reflected by radiophosphorus incorporation, the rate of nucleic acid renewal in spleen, thymus and lymph nodes under various experimental conditions (*Lundin* 1958).

In view of the fact that the DNA content per cell is essentially constant for any given type of cell, the DNA concentration in the tissue could be used as a measure of its cell density. The amount of radiophosphorus incorporated into DNA was used as a yardstick of cell production. The RNA turnover in tissues that proliferate as rapidly as lymphoid tissue should provide little additional information and, in fact, merely corroborated the results of the DNA measurements.

The main results of the DNA-turnover-experiments were the following.

After hypophysectomy the most pronounced changes occurred in the spleen. Its weight declined but the concentration of nucleic acids per gramme of tissue remained unchanged. Concomitantly the DNA turnover showed a marked reduction compared with normal as well as with sham-operated animals. The atrophy of the spleen can therefore be fully explained by the reduced rate of cell division. The thymus exhibited the same reaction although much less marked. The lymph nodes, on the other hand, gained in weight. Their DNA concentration and turnover were unchanged.

Typically, some degree of malnutrition occurs following hypophysectomy, the animals then eating on the average 4 grammes of a standard diet daily the 10 first days after operation, as compared with 15 grammes for intact controls. But, at least to some extent, the atrophy of the lymphoid organs in hypophysectomized rats differed from that seen in intact rats after starvation. Thus a daily dietary intake restricted to 4 grammes had the following results in intact rats. The adrenals showed a slight but significant relative hyperplasia. Whilst the spleen became only slightly atrophic, its DNA turnover was considerably reduced. The thymus exhibited very conspicuous atrophy and there was loss of lymphoglandular tissue. The DNA turnover was nevertheless unchanged in both the thymus and the lymph nodes. Evidently, therefore, enhanced adrenocortical function is responsible for at least part of the lymphoid tissue atrophy ensuing from undernourishment in intact rats.

Many workers have studied the effects of adrenalectomy and cortisone treatment on the weight and histology of the lymphoid organs. Conversely, data on the concentration and turnover of nucleic acids in these structures are rare and conflicting. In our series of adrenalectomized rats, the spleen probably gained some weight whilst the thymus and lymph nodes became significantly heavier. Neither adrenalectomy nor cortisone treatment appreciably influenced the concentration of nucleic acids in the lymphoid organs. After adrenalectomy the DNA turnover was unchanged in the thymus and lymph nodes and slightly diminished in the spleen, perhaps owing to the slight malnutrition accompanying this intervention. Cortisone treatment, causing the characteristic marked involution

of the thymus but only slight atrophy of the spleen and lymph nodes, inhibited the nucleic acid turnover of the spleen to a slight degree, that of the thymus to a marked degree and that of the lymph nodes not at all. From these observations and known histological facts it can be concluded that cortisone-induced lymphoid tissue atrophy—greatest for the thymus and less extensive for the spleen—is due to a combination of a retarded rate of cell division and an accelerated rate of cell destruction (or removal from the organ).

The investigation concerning the influence of the thyroid gland upon lymphoid tissue growth was conducted along similar lines.

In 10 days thyroidectomy induced slight atrophy of the spleen and thymus but did not affect the lymph nodes, and at the same time the DNA turnover was reduced in the spleen, less reduced in the thymus and unchanged in the lymph nodes.

Thyroxin treatment of intact animals caused the DNA turnover to rise somewhat although the increase was significant in the lymph nodes only. In all groups of thyroxin-treated rats the spleen exhibited follicular hyperplasia, and proliferation of plasma cells in the red pulp.

STH-treatment of hypophysectomized rats had essentially the same effect as thyroxin administration, namely hyperplasia isometric with body weight of the spleen and thymus but not of the lymph nodes. The weight gains of the organs were accompanied by corresponding enhancements of the DNA turnover.

A mutual potentiation of the effects of thyroxin and STH was apparent from the magnitude of the DNA turnover in the spleen and possibly in the lymph nodes.

The results of these turnover experiments suggest that the enlargement of the spleen follicles and the plasma cell accumulations seen after stress are due to either thyreotrophin or STH, or both. But we have still not seen that the ribonucleic acid turnover in stressed animals is commensurate with the action of thyroxin and STH. Such seems to be the case, however. In rats exposed to cold, the DNA turnover was markedly increased in the spleen, moderately so in the thymus and apparently unchanged in the lymph nodes. The RNA turnover was similarly altered (*Lundin and Mellgren* 1959).

Hence the following conclusion may be drawn. That pituitary factor which in protracted stress promotes enlargement of the spleen follicles and plasma cell infiltration into the lymphoid organs is very probably thyreotrophic or somatotrophic hormone or a combination of both. The alteration in DNA-turnover, most accentuated in the spleen, agrees better with the effect of STH. In any case these changes—at least those in the spleen and thymus—reflect the formation of new cells and proteins.

It is well known that plasma cells occur in inflammatory foci and as infiltration throughout the lymphoid organs after antigen administration. It has also been established that proliferation of plasma cells, particularly of those of immature type, is correlated to production of γ-globulin in inflammatory conditions. But it is hard to see which exogenic antigens might be involved in, say, the adaptation reaction after exposure to cold. At any rate there is nothing to show that plasma cells produce either globulins or antibodies after cold, formalin, STH or thyroxin.

In our attempts to solve the problem we have used two lines of approach, namely serum protein analysis and estimation of the preparedness to antibody production after stress and STH administration.

In intact animals 14 days of formalin stress gave rise to the previously well known reduction of albumin fractions. The gamma fraction was perhaps slightly subnormal. However, despite the concomitant atrophy of lymphoid organs and scarcity of plasma cells, the gamma fraction was increased after hypophysectomy (*Mellgren* 1951). Since this phenomenon (earlier observed by *Li* 1944; *Bernasconi* 1956 and others) might have been due to a change in plasma volume, we had to determine the animals total plasma volume.

By the Evans blue dye dilution method (*Enerbäck & Belin* 1958) it was found that

plasma volume was essentially unchanged 6 to 9 days after a sham operation, much reduced both absolutely and relatively after hypophysectomy and, in hypophysectomized animals, restored to the normal level after STH (*Enerbäck et al.* 1959).

Now lastly, by making simultaneous plasma volume determinations and serum protein analyses, we found that hypophysectomy did not increase the total amount of γ-globulin.

However, in hypophysectomized animals given STH there was a highly significant increase of the total amount of β- and γ-globulins both absolutely and relatively. Consequently the plasma cells probably produce β- and γ-globulins after STH administration and they possibly do so after stress.

The question whether these changes in plasma cell proliferation and in serum protein levels is associated with an altered production of antibodies against exogenous antigens had so far been studied in a few experiments only. These trials have given the following preliminary results.

Hypophysectomy does not alter the animal's ability to produce antibodies against typhus H vaccine or (as previously reported by *Nagareda* 1954) against sheep erythrocyte antigen. However, when sheep erythrocytes are given in minimal doses, a small but significant reduction of the hemolysin titre will be found (*Lundin,* 1959). Preliminary trials have disclosed no evidence of STH affecting the antibody formation in hypophysectomized animals following typhus H vaccination (cf. *Hoene and coworkers* 1954).

The slight action of hypophysectomy on antibody production is remarkable but can be variously explained. The loss of STH and TSH elaboration by the pituitary might be counteracted by the concomitant loss of cortisone synthesis. Or the spleen, where large amounts of antibodies certainly are produced under normal conditions, might be largely replaced after hypophysectomy by the lymph nodes whose function insofar as it is reflected by nucleic acid turnover is essentially unaffected by hypophysectomy.

Berglund (1957) reported that splenectomy in the rat had negligible effects on the production of hemolysin against sheep erythrocytes but did enhance the animal's susceptibility to the action of cortisone. However, we have not been able to establish that hypophysectomy tends to increase the inhibiting effect of cortisone on antibody production (*Lundin* 1959).

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"Bilharzia"—A Military Hazard in Puerto Rico

By

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INTRODUCTION[1]

SCHISTOSOMIASIS MANSONI has been known in the Caribbean as "bilharzia" since its discovery in Maraguez, Puerto Rico, in 1904 by Dr. Isaac Gonzalez-Martinez. The etiologic agent is the blood fluke *Schistosoma mansoni,* which inhabits the hepatic portal system. As a chronic disease, bilharzia causes an impairment of the structural integrity of the intestinal wall, cirrhotic liver damage, and splenomegaly. The infection rate among Puerto Ricans is estimated to be from 10 to 20 percent. The distribution is island-wide, and both sexes and all ages are involved. Infected persons range in age from six months to the very oldest. The prevalent peak is reached in the 25-year age group and is slightly higher in males. Many cases remain essentially asymptomatic, but a low percentage do become frankly diseased. The death rate from uncomplicated cases is low. Possibly, a majority have intermittent mild expressions of enteric infection and unmeasured debilitation. The infections are known to last for many years and, even the asymptomatic are important epidemiologically.

The infection is acquired through the skin. Minute larvae, or cercariae, which emerge from the intermediate snail host, *Taphius glabratus,* contact the body by a vigorous swimming action and penetrate within a few minutes. A rash or dermatitis may occur if large numbers of cercariae have penetrated. The larvae migrate by way of the circulatory system to the lungs and, finally, to the blood vessels of the liver and intestine where they mature and produce their eggs, some of which pass through the intestinal tissues and are discarded with the feces. A considerable portion of the eggs, however, are carried by the blood flow into the liver, where they account for the formation of tissue-damaging pseudotubercles.

Diagnosis is basically dependent on recovery of eggs from the feces. Skin tests and several serologic technics are effective, but these fail to distinguish between severe and light infections, or pre-existing ones. Rectal biopsy has been recognized as a good clinical diagnostic procedure. In general, no drug has been used successfully. Injections of Fuadin (trivalent antimony compound) are not only inefficient, producing a cure rate of less than 50 percent, but also are relatively toxic and expensive.

The snail vector of most importance in the New World is *Taphius glabratus.* It occurs in all types of fresh water environments in Puerto Rico and Vieques Island, but has a discontinuous distribution throughout the Caribbean. Though completely aquatic, *T. glabratus* may survive buried under damp debris for many weeks. Extremes of rainfall constitute damaging influences, but local natural enemies of importance have not been recognized. Its egg-to-egg cycle requires only about 40 days, and the propagative potential of the species is great, allowing for rapid repopulation following reduction by natural influences and/or by the use of molluscicide.

The experimental control program of the Puerto Rico Department of Health, Bilharzia Control Unit, includes studies of improved water supply, latrines, sewage systems, health education techniques, chemotherapeusis, and snail vector control. The latter is deemed the most important at present.

Chemical control of the snail has been successfully achieved through the use of sodium pentachlorophenate, applied as a

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solution at the rate of 5 to 10 ppm for 24 hours in flowing waters. Special automatic dispensers have been developed for this purpose. A variety of other methods, including power spraying and use of impregnated pellets, are under study. Biological control through the use of the highly competitive snail species, *Marisa cornuarietis*, appears promising following field tests. Such a procedure would, of course, be impractical for military use, except for established bases, but would be ideal as a public health measure.

Several agencies in Puerto Rico are contributing to the study of the epidemiology, ecology, and control of bilharzia, including the U. S. Army Tropical Research Medical Laboratory; the School of Medicine, University of Puerto Rico; the Veterans Administration, San Patricio Hospital; the U. S. Public Health Service, Puerto Rico Field Station; and the U. S. Navy, Vector Control Unit, Roosevelt Roads Base. Because of the complexities of bilharzia control and the expense involved, ultimate elimination of the disease as a public health problem requires close coordination of all governmental agencies. Successful bilharzia control in Puerto Rico would be an encouraging sign for millions of people in endemic areas of South America, Africa, and Asia.

Bilharzia is a tropical disease with which relatively few military medical officers have had experience. Moreover, the early symptoms of the disease are non-specific and easily confused with other enteric infections. Chronic forms of bilharzia probably would be manifested long after the military personnel and their dependents had left the area in which the infections were contracted. Therefore, it seems appropriate to alert the medical profession to an infection which is endemic in Puerto Rico where extensive military installations exist.

Contingents of all U. S. Armed Forces are operating in Puerto Rico. The Armed Forces have maintained a significant interest in the bilharzia problem, following the formation of the Anemia Commission of Puerto Rico in 1904, under the auspices of the Board of Health, U. S. Public Health Service, and the U. S. Army. After bilharzia was found to be a New World problem by Dr. Gonzalez-Martinez, the Commission reported 21 positive cases among 1,408 persons examined because of dysentery. Members of the Army Medical Corps became increasingly aware of the endemic nature of the disease over a span of years until 1945, when Majors T. H. Weller and G. J. Dammin made a fecal survey in cooperation with the Selective Service System. An infection index of 10 percent was found among males of 18 to 35 years of age, and cases were reported from almost all municipalities of the island. At that time, positive persons were refused Army service. Local military research on bilharzia was formalized in 1950 with the establishment of the U. S. Army Tropical Research Medical Laboratory in San Juan. This laboratory has maintained a broad program of study on various aspects of the disease, including field and laboratory biologic studies of the snail, investigations on immunologic manifestations of the infection, and the evaluation of laboratory diagnostic procedures.

Significant Military Areas[2]

Fort Buchanan—This base is committed primarily to training insular enlistees and is located in suburban San Juan among rolling limestone hills. It is contained essentially in the watershed of the El Toro stream, which is cement-lined through the main part of the Post. When a few children of families living in one of five housing areas on the base were shown to be suffering from bilharzia during 1956, a general survey of school children was made, but no further cases were found. A snail survey revealed several colonies on the base, but none were present in the cement-lined portion of the stream, where the children presumably were exposed. However, a sizeable thriving colony, including infected snail specimens, was found upstream and outside the base. It was assumed that cercariae had been carried by the current to the exposure site.

Snail control in the El Toro watershed has

been attempted in cooperation with the base engineers, and the Bilharzia Control Unit, Puerto Rico Department of Health. Several applications of sodium pentachlorophenate by means of power sprayers from 1956 to 1958 greatly reduced the snails, but failed to eradicate them. Successful repopulation was apparent about four months after treatment. The watershed poses special problems with its variety of snail habitats, including large and small streams which are lined with dense vegetation, swampy areas, and a single relatively small lake which is used for fishing. Base personnel have been repeatedly warned about the danger of contacting these natural waters. Training films, lectures and bulletin board materials have all been used. No additional cases have been reported. Although the hazard has been reduced to a minimum, it is imperative that personnel on the base continue to receive regular briefings on the widespread hazard of contacting fresh water on all parts of the island. The nearest large lake (Loiza), frequented by Fort Buchanan fishermen, receives water from four endemic watersheds, and should be studiously avoided. The small lake on the base contains only a few *Taphius* snails, and it does not appear to be a favorable habitat. Furthermore, the competitor snail *Marisa* has been added to it and is thriving there.

Roosevelt Roads Base—The terrain of this large base combines rolling hills and alluvium of two large creeks (Quebrada Aguas Claras and Rio Daguao). Snail habitats include estuarine swamps and mosquito-control, concrete-lined ditches, as well as the above streams. *Taphius* is found in large numbers widely dispersed in these waters and positive specimens are common. During one month in 1956 positive snails were taken from 12 points, which appeared to be contaminated by promiscuous defecation. However, undoubtedly some infected specimens are washed in from outside sources. Although infection of military personnel and dependents has not been reported, the potential hazard at this base is more serious than for any other on the island. The disease is hyperendemic in surrounding insular communities, and the opportunity for water contact inside the base is great—extending, for example, even to the water hazards in the golf course. The problem has been under surveillance for the past two years and a molluscicide program has been in effect during the past 14 months. This program was a holding action, since only snail colonies near housing areas and other public zones were being given consideration, while others in bush sections and large swamps were being neglected. The hazard of exposure was thus minimized but will be markedly reduced as a result of an over-all program started in January 1959. The project is under the Vector Control Section of the Public Works Department. Base personnel are under constant reminder of the health hazards by means of motion pictures, lectures, bulletin board materials and warning signs. Swimming is done only at supervised sea beaches.

Sabana Seca Base—This small base serves as a communications unit and is located in low flats near the northern coast adjacent to Bayamon. It consists of a northern swamp land section and a drier southern portion. Large colonies of *Taphius* live in the swamp where the water level fluctuates considerably. Both civilian laborers and Navy personnel, who must enter the swamp area for maintenance functions, complain of attacks by numerous large leeches (*Helobdella punctolineata*). Repeated attempts to clear the jungle-like vegetation have been futile, and two herbicides used serially on the dense cattails and grass had little effect on the *Taphius* during 1956. Operation of an automatic tide-gate for water removal effectively reduced the snails in an area of 15 acres during 1957. A real possibility that snails will become infected by defecation of infected workmen exists.

The principal drainage ditch and small swamp within the residential and administrative parts of the base contain a few *Taphius,* but no positive specimens have been collected. Continued dissemination of information and warnings is deemed adequate, and snail control is not planned presently.

Ramey Field—This base occupies a semi-arid plain in the northwest corner of the island. No streams or other open water exist in the main part of the base, but at the perimeter there are two sedimentation reservoirs of about five acres in size which constitute the water supply for the entire base. They are filled by one of two irrigation channels originating from Lago Guajataca. *Taphius* occur in the lake and the two diversion channels even to the sedimentation reservoirs and to the open cement-lined channel to the water processing plant on the base. However, no exposure hazard is believed to exist for base personnel, as the reservoirs are off limits and domestic water is protected by rigid processing. Consequently, snail control does not appear necessary.

Fresh water fishing in the vicinity of Ramey Field should be avoided, with the possible exception of Lago Guajataca. For general consideration of lakes, see discussion.

Vieques Island—This island, located 10 miles to the east of Puerto Rico, is 20 by 10 miles in size. It is relatively dry and has only 26 streams suitable for snails. The eastern and western thirds of the island are under the control of the U. S. Navy, and the latter is used as a maneuver area by the Marine Corps, involving many thousands of troops for short periods of time. Only the central third is inhabited by native people. The entire island is a test area with the objective of ultimate snail eradication.

Bilharzia has been widespread among the civilian population, the infection rate ranging from 11 to 14 percent. Remarkably few snail colonies with positive specimens have been found, and none in military zones. Nonetheless, extermination efforts are applied to both civilian and military zones. Though minimal, the exposure hazard for troops is recognized and strict instructions are given against contacting fresh water. Currently an estimated 95 percent of the snails have been destroyed by chemical means in streams and swamps during the past three years, and prospects of achieving eradication are good.

Discussion

A three-pronged bilharzia hazard confronts the armed forces in Puerto Rico. Both on- and off-duty activities could bring personnel in contact with infectious water; families of service people increase the problem, because of the pleasure derived by their children from water-play activities; and there is the possibility of Puerto Ricans in the Armed Forces transmitting the infection to other parts of the world.

The fact that cases of bilharzia have been infrequent among military personnel is probably due to planned endeavor to inform them at overseas processing centers and on arrival in Puerto Rico, and concern for dread-diseases is intensified by hearsay. Furthermore, living conditions in housing areas on military posts tend to minimize exposure hazards. Chlorinated swimming pools and attractive sea beaches are more readily accessible and dangerous streams and rivers less so. The occurrence of a few acute cases of infection at Fort Buchanan makes it imperative that there be no interruption or lessening of efforts to inform people of the potential danger through overseas processing centers, military schools in Puerto Rico, official post bulletins, and warning signs. Intracantonment disease vector control programs should be continuously alert for snail colonies; and encouragement, assistance, and cooperation for and between military and civilian agencies, attempting to solve the control of this complex disease, should be continued.

It is inevitable that the excellent fishing in the lakes of Puerto Rico will attract many people. Actually the relative hazard of lake fishing is undetermined and infected snails have not been found in lakes. Snails occur, primarily, at the lake margins and at the point of junction between lake and affluent rivers. The latter is possibly the place of greatest danger. Fishing in the middle of the lake is probably free of hazard. Unnecessary exposure, however, should be avoided, and a bottle of 70 percent alcohol should be carried for local application. It is effective probably for at least 3 to 5 minutes after the larvae

make contact with the skin. Vigorous rubbing and drying with cloth material are also protective. The calculated risk from lake fishing is low, but indifference is ill advised; stream fishing should be categorically avoided.

Summary

The occurrence of bilharzia, or schistosomiasis mansoni, on and around military reservations in Puerto Rico has been reviewed and the potential hazard in each case has been assessed. Infections among military personnel have been rare, probably because of proper warnings, habits, and conditions of living, and availability of chlorinated swimming pools and ocean beaches. Consequently, a continuous program of education and warning should be maintained on all military posts in Puerto Rico, and disease vector vigilance should be in effect.

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FIRST GRADUATING CLASS IN NEW COURSE IN VETERINARY ASPECTS OF NUCLEAR MEDICINE

(Walter Reed Army Institute of Research, Washington, D.C., February 12, 1960)

U.S. Army Photo

Front Row (L to R): 1st Lt. R. A. Kuttler, Lt. Col. R. E. Prather (*Ass't. Course Director*), Col. C. S. Snider (*WRAIR Director of Vet. Med.*), Col. M. B. Starnes (*Course Director*), Lt. Col. G. W. Vacura, Capt. R. J. Warne.

Second Row (L to R): 1st Lt. G. F. Orthey, Maj. W. H. Watson, 1st Lt. K. E. Kinnamon, Maj. G. E. Ritter, Maj. G. M. Grimes, Maj. R. B. Greiner, Maj. J. M. Shuler.

Third Row (L to R): Capt. C. C. King, Capt. D. G. Shuman, Lt. Col. G. C. Coburn, Capt. L. R. Hutchinson, Capt. K. L. Kramer, Capt. A. D. Wright, 1st Lt. H. L. Addis.

Newer Concepts in Everyday Treatment of Conditions in Otolaryngology

By

COLONEL JOSEPH CHARLES ELIA, USAF-R, MC*

RECENT years have seen a definite trend toward conservatism in the treatment of otolaryngological disorders.[1] Paradoxically, this trend may be attributed to the advent of newer, more effective medications and to better understanding of adjunctive therapy. It was deemed desirable to review some new concepts of treatment for such common conditions in otolaryngological practice as infections of the para-nasal sinuses and the upper respiratory tract, chronic mastoiditis, lingual tonsillitis, laryngitis and vertigo.

INFECTIONS OF THE PARA-NASAL SINUSES AND UPPER RESPIRATORY TRACT

Concerning the etiology of the above conditions, it is necessary to take into account such co-existing pathology as perennial as well as seasonal allergy. All too often an obstruction due to an allergic condition has been mistaken for and treated with chemo-antibiotic agents. While secondary infection may be readily controlled by chemotherapy, the allergy—basic cause of the ailment—has gone unrecognized. Long standing allergy with obstruction is generally associated with secondary infection and requires treatment.

It is within the province of the general, or any other, practitioner who treats upper respiratory diseases to rule out the possibility of an allergen as a causative agent. Smears made directly from the nasal discharge, a simple office procedure, will reveal the diagnostic eosinophilia. No physician can afford to be without his microscope to examine a nasal smear, stained with Hansel's Stain. If this is done routinely, an allergic condition can be discovered and appropriately treated. Once this possibility is ruled out, the management of the infection is then uncomplicated.

In a recently reported series of infections,[2] excellent results were noted in severe maxillary, ethmoid, and frontal sinusitis which responded to treatment with a new preparation, sulfadimethoxine (Madribon†). In patients with a concomitant allergic disorder or history of allergic background, antihistaminic therapy was prescribed, along with the antibacterial agent. Topical vasoconstrictors were judiciously avoided, for continued topical application of such preparations is deleterious. Treatment of an already inflamed mucous membrane surface provides temporary relief in some instances, but continued use is often attended by considerable damage which far outweighs the mild and transient relief which may be obtained. Much more preferable are the preparations that contain systemic vasoconstrictors and antihistamines. To promote nasal and sinus ventilation, oral drugs have been found more effective and less irritating than topical agents.

Madribon is one of the newer, low-dose, long-acting sulfonamides which has been employed with dramatic success in an increasingly large number of clinical trials.[3–6] Its quick action, sustained blood levels,[7] slow excretion, chiefly as a glucuronide[7,8] and high bactericidal activity against a variety of organisms,[9] almost free of untoward reactions,[4–6] has made it a most useful therapeutic agent in uncomplicated infections. Furthermore, the cost of sulfonamides is about one-tenth that of the commonly used antibiotics.

Depending on the virulence of the infection and degree of pyrexia, the dosage of Madribon was adjusted to the specific need.

* Paper read by title at 66th Annual Convention of the Association of Military Surgeons of the United States of America, Washington, D.C., November 9-11, 1959.

† Trademark of Hoffman-LaRoche, Inc., Nutley, N.J.

Two to four tablets (1 to 2 gm.) given as a single initial dose, followed by two tablets (1 gm.) daily for 8 to 10 days generally provided complete remission. In one or two cases it was necessary to irrigate the maxillary sinus or to infract the middle turbinate to effect adequate frontal drainage. No radical sinus surgery was necessary in any of these cases as long as adequate drainage either by simple surgical office procedures and/or antihistaminic therapy was instituted first. Only then was sulfonamide therapy administered.

Chronic Mastoiditis

A total of 17 patients with chronic mastoiditis have been treated to date using a regimen of gamma globulin to bolster the body's natural defenses and increase the resistance to infection, while Madribon effectively controlled the infection.[2] In the treatment of long standing infections such as chronic mastoiditis the drug of choice must be judged by certain criteria. It must produce no neurotoxic effects and not incur the danger of superinfection. Furthermore, because of the protracted nature of the disease requiring continued medication, the cost of the drug must be such as the average patient can afford. Also, because of the necessarily long period of treatment, a medication that can be taken on a once-a-day basis has distinct advantages for an ambulatory patient. Because Madribon combines these features of effectiveness, safety, economy and convenience, it is now my drug of choice in these chronic infections.

Since the chief aim in the treatment of chronic mastoiditis is the preservation of hearing, which is generally destroyed by radical mastoid surgery, the patient should be given the full benefit of conservative treatment before surgery is contemplated. In 19 cases of chronic mastoiditis,[2,10-12] the routine treatment included the injection of 10 cc of human immune globulin (165 mg/cc of the globulin fraction of pooled normal human plasma) every other day in a course of 15 injections. Concurrently, two tablets of sulfadimethoxine were administered. The rationale of this procedure was to strengthen host immunity as the sulfonamide exerted its bacteriostatic effect. The duration of treatment varied with individual need, but was usually continued for 60 days.

Seventeen of the 19 patients were followed regularly, two being lost to follow-up. No untoward reactions were noted in any of the patients under the regimen of gamma globulin and sulfadimethoxine. Repeated urinalyses revealed no crystalluria in any of the cases under study. Twelve of the 17 patients have had dry ears for more than 6 months; 7 have noted improvement in hearing, and all 17 showed complete disappearance of the characteristic foul odor associated with chronic mastoiditis. Three patients whose ears have been dry for more than a year, have had spontaneous closure of the tympanic membrane perforations.[13] This method of treatment not only curbs many of the serious sequellae of mastoid disease, but often restores some degree of hearing, and generally makes the patients more comfortable.

Lingual Tonsillitis

Lingual tonsillitis, a definite clinical entity[14] involving a much neglected portion of the nasopharynx, accounts for many ills that are overlooked by a large number of clinicians. This condition is often the cause of dysphagia, a tickling cough, referred otalgia,[15] hoarseness, globus, tongue pain, and occasionally fever and disturbances of taste. The symptoms are either bi-lateral or unilateral depending upon the growth of the lymphoid tissue in this region. Often only one of the above symptoms is present, but many more times several or all of these signs characterize the disease.

The otolaryngologist needs to reassess the indication for tonsil and/or adenoid surgery, for it has been noted that most of these patients have had previous tonsil surgery without sober consideration of the need for radical measures. In many of these instances the lingual lymphoid masses have become hypertrophied as a result of compensatory response to the absence of pharyngeal and faucial tonsils. "Frequent colds" do not constitute an indication for tonsillectomy or

adenoidectomy when colds precede the tonsil infection. However, when the tonsil infection is a primary disease and the colds and ear infections are secondary, then and only then should removal of these lymphoid masses be attempted as a last resort.

In a collected series of cases, it was noted that the lingual tonsil hypertrophied over a period ranging from 12 to 20 years after tonsil and/or adenoid surgery. Indications for surgery, therefore, should be either a *primary* tonsillitis or adenoiditis with colds or ear infections which *follow* the lymphoid infection, or if the enlargement is of such a degree as to obstruct respiration or swallowing.

While tonsil surgery is justified in some cases, these cases are becoming fewer with the advent of such drugs as sulfadimethoxine. Secondary infections—tonsillitis, adenoiditis and mastoiditis—can be virtually eradicated with proper treatment when the nasopharyngeal lymphoid tissue is intact. The tonsils act as a huge sponge, mopping up infections and preventing absorption of purulent matter. Unless tonsil surgery is employed judiciously many more cases of lingual tonsillitis will be noted. In our experience, sulfadimethoxine has controlled the infection whether in acute lingual or pharyngeal tonsillitis. In patients with sulfa drug sensitivity, other antibacterial therapy has been used, and in a few instances irradiation has decreased the size of the lingual tonsil.

Laryngitis

Laryngitis resulting from infection responds very well to sulfadimethoxine without voice rest.[2] The patient is advised not to shout *or* whisper, or otherwise abuse his already inflamed larynx, but to speak as far as possible in a normal voice. Voice rest adds nothing to treatment and is often discouraging to the patient. More important than voice rest is the admonition not to whisper. Usually two or three tablets of sulfadimethoxine in a single dose, followed by two tablets daily for about 8 days suffices to clear up the condition.

In cases of laryngitis with a background of allergy, the patient is placed on an antibiotic-steroid combination used as a nebulizing agent in a DeVilbis Nebulizer which gives excellent results. This form of treatment has been used successfully in combination with sulfadimethoxine. Patients with polypoid lesions on the vocal cords have responded well to this type of treatment of several weeks' duration. Thus, surgery has been made unnecessary in some instances. This regimen has enabled patients to recover and return to normal activity sooner than by any other means employed previously.

Vertigo

From time immemorial the complaint of vertigo has been one of the most troublesome conditions for the otolaryngologist to treat. Many of the causes of vertigo can be either eliminated or controlled, but in others the etiology is unknown. When the cause is central, control is admittedly difficult, but when its origin is peripheral, it is more amenable to therapy. The blocked Eustachian tube can be easily ventilated. Vertigo resulting from erosion of the temporal bone housing of the semi-circular is subject to the same treatment as chronic mastoiditis. Occasionally radical mastoidectomy is dictated by the severity of the symptoms. The vertigo associated with Meniere's phantom symptom-complex is possibly best treated symptomatically, depending upon the severity of the predominating symptom. Thus, arteriosclerosis which produces dizziness may be treated with vasodilators.

Regardless of the cause of vertigo, the patient's extreme discomfort demands immediate relief from this frightening and debilitating condition. No matter what the cause, many patients will get relief from intravenous injection of sodium bicarbonate[16–18] in 50 cc doses of a 7 per cent solution, given rather rapidly. The mechanism of action is not well understood, but the relief it provides is dramatic.

A case of an elderly male patient with an inoperable malignancy of the brain accompanied by violent vertigo merits reporting. When given an injection of this solution, he

experienced almost complete relief from dizziness, which lasted more than three weeks. After that it was repeated at one week intervals. This was the only preparation which gave relief, allowing the patient to live more comfortably with his fatal disease.

In a reported series of 84 cases[12] of vertigo, the 7 per cent sodium bicarbonate solution given by vein provided excellent results in 80 per cent of the patients. The remaining 20 per cent reported good to fair results. When hay fever[1] or other allergenic manifestation co-exists, adjunctive treatment for this condition should be employed; for example vasodilators should be used when indicated. An antinauseant is useful when the emergency has subsided with the "priming dose" of sodium bicarbonate.

Summary

Some new concepts of therapy are presented for infections of the para-nasal sinuses and upper respiratory tract, chronic mastoiditis, lingual tonsillitis, laryngitis and vertigo.

Sulfadimethoxine, a low-dose, long-acting sulfonamide has been extensively used with better results than with antibiotics.

Upper respiratory infections respond well to this sulfonamide therapy. Mastoid disease has been virtually eliminated with this drug.

No neurotoxic signs or superinfection have been observed.

The single daily dose provides convenient medication at a much lower cost to the patient than antibiotics.

Adjunctive therapy must be employed in complications of allergy, arteriosclerosis or obstruction.

A new method of controlling vertigo with intravenous injection of sodium bicarbonate is discussed. After a "priming dose" of this agent, antinauseants may be used for continued relief.

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Reduction and Fixation by Pinning "Banderillero" Style– Fractures of the Humerus at the Elbow in Children

By

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(With three illustrations)

INTRODUCTION

THIS presentation is not intended to be a work of an experienced orthopaedic surgeon, inasmuch as my training is in the embryo stage at this time. I merely would like to report on a method of treatment of fractures in the supracondylar region, so-called in children, which has given good results in my hands. It is hoped that you may be encouraged to use this method if you are having difficulties in managing some of the more difficult types of these fractures.

GENERALITIES

It has been well established that fractures in children should be treated conservatively. The basic principles of the treatment of these fractures, that is, alignment and apposition should be carefully followed. In the case of supracondylar fractures of the humerus at the elbow in children, alignment must be kept in mind. Because of the location of the fracture near the elbow the reduction must be consistent with a good functional result.

In the analysis of fractures in children treated at El Paso General Hospital, El Paso, Texas, carried on by Dr. Louis W. Breck and Dr. W. Compere Basom in the year 1942, they found the most common sites are: (1) Fractures of the radius and ulna, (2) Fractures of the clavicle, (3) Elbow fractures (supracondylar), (4) Fractures of the shaft of the femur, and (5) Fractures of the tibia and fibula.

Children will always behave like children. It was my observation as an Intern in this same hospital (1956-1958) that this same order of frequency still prevails.

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FRACTURES OF THE LOWER END OF THE HUMERUS

The fractures in this area have been classified in three groups:

1. Extension type
2. Flexion type
3. Intercondylar "T" or Comminuted fractures.

The extension type fractures have been the ones most frequently encountered. This fracture is usually the result of backward thrust or hyperextension at the elbow, and the distal fragments tend to be displaced backwards.

The injury usually results from a fall on the hand with the elbow flexed. The lower end of the humerus being pushed backwards by force transmitted upwards through the bones of the forearm.

In children the fracture line is usually transverse and usually complete. At times however, there may be a greenstick type with merely angulation.

SURGICAL PROCEDURES FOR REDUCTION OF THE SUPRACONDYLAR FRACTURE WITH BACKWARD AND MEDIAL DISPLACEMENT OF THE DISTAL FRAGMENT

The patient is given a general anesthetic. The extremity involved is scrubbed for ten minutes with pHisohex and carefully prepared and draped over the chest of the patient. A closed reduction is performed. The surgeon's hands are placed at the fracture with the thumbs on the back of the distal fragment and the fingers in front of the proximal one. Traction is made and by pushing the distal fragment forward and with the fingers pushing the main humerus shaft backwards the elbow is flexed to 90 degrees. The reduction is good if the forearm will fall

FIG. 1. Supracondylar fracture of the left humerus with backward displacement of the distal fragment.

FIG. 2. Antero-posterior view after closed reduction and blind pinning.

into full flexion. At this time an assistant holds the fracture in the reduced position. If reduction cannot be obtained or if there is a rubbery sensation as that felt with soft tissue interposed or if the radial pulse should be obliterated with slight manipulation or if the radial pulse is obliterated at the time the patient is examined, then an open reduction is indicated with careful displacement of soft tissue out of the fracture site.

Then with the fracture site reduced, the pins are inserted in position. A hand drill is loaded with a suitable diameter Kirschner wire usually .062. About 3 or 4 inches of the wire are left extending from the chuck of the drill point. The wire is inserted into the medial epicondylar region using due care to avoid the ulnar nerve. The wire is at first drilled at right angles to the epicondyle, then the wire is directed so as to go through the distal fragment and into the proximal fragment at about a 60 degree angle or so. The lateral epicondyle pinning is performed in the same manner. At this time an x-ray study is made both antero-posterior and lateral views to be certain that the reduction is proper and that the pins are in good position. The wires are left extending through the skin, they are cut about an inch from the skin and bent so that they cannot work in too far. The elbow is then put up in a 90 degree posterior molded plaster splint or if the circulation is impaired it can be put up at 100 to 130 degrees. Adhesive tape can be applied on the forearm and the extremity can be put up in a shoulder spica cast incorporating the adhesive tape near the hand portion of the cast with the shoulder at 90

FIG. 3. Lateral view after closed reduction and blind pinning.

degrees abduction and about 30 degrees external rotation. A position similar to that described by Dunlop using adhesive traction recumbent in bed.

After Care

All of these patients must be treated at the hospital. Post-operatively the patient is elevated on pillows. The radial pulse is checked every 15 minutes, then every 30 minutes after five hours, every hour after the next twelve hours. Ordinarily the patient can be dismissed from the hospital in 24 to 72 hours. The post-operative care is amazingly simple, usually. At approximately the fourth week after surgery the pins can be removed and x-rays are made. If there is a sufficient amount of callus present a long arm posterior molded splint can be applied that can be removed to allow gentle exercises once a day.

By the end of five weeks usually full exercises are permitted. Ordinarily a full range of motion can be secured and the results have been uniformly good.

Observations

Although I prefer a general anesthetic, a block anesthetic in the extremity can be used satisfactorily.

The best results are obtained if the fracture is treated early, within one or two hours after the fracture occurs, as the swelling will interfere with the closed reduction.

It is emphasized that by treating the fracture and holding it post-operatively at 90 degrees or more, very little circulatory problems are encountered and the circulation is improved.

Disadvantages or Possible Complications with this Procedure

There are disadvantages and possible complications with this procedure but I have not (to date) observed these:

1. Ulnar nerve palsy
2. Infection
3. Muscle or brachial artery in fracture site.

The soft tissue of course must be displaced from the fracture site and if an open reduction is necessary it should be done. In this way, in all probability a Volkmann's ischemic contracture can be avoided.

Advantages of this Procedure

Good maintenance of position and avoidance of displacement of the fracture post-operatively are the prime advantages.

Follow-up Period

I have been very pleased with the results of these cases over a period of approximately nine months of follow-up examination on the small number of cases done.

If you treat this type of problem cases, I would appreciate knowing of your results.

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Treatment of Dermatitis Venenata

By
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IN ADDITION to the primary task of caring for the sick and wounded of the military, the medical services are also concerned with the problem of men made ineffective by natural and man-made agents and the prevention of this situation. Mass casualties are usually associated with CBR warfare, but in this paper we are going to discuss one of nature's own weapons, the plants of the Rhus family—poison ivy, oak, and sumac—which when contacted by susceptibles give rise to dermatitis venenata

This is an account of the experience of a reserve general hospital during a fifteen day period of active duty training at an Army camp which provides primarily for the maneuvers of a National Guard division. On the third day of the cycle the tactical troops of the division were taking up positions in the field in bivouac. Organizational and individual camouflage were being strictly observed. The personnel of the division were mainly drawn from a large urban center, and it must be concluded that they were unfamiliar with the common foliage known to rural people. For camouflaging their helmets many chose to use poison ivy plants. Poison oak and sumac were likewise utilized for camouflaging command posts. Within forty-eight hours, and at an increasing rate thereafter, soldiers presented themselves at sick call with itching, blistered skin lesions.

They were evacuated to the reserve general hospital established under field conditions under canvas. The bed capacity of this installation was soon taxed beyond its capabilities. Three medical officers were available for duty. One conducted an out-patient service and attended between 120 and 150 individuals daily. The other two officers worked as a team and staffed a medical and surgical ward, ran an operating room schedule, and, in addition, conducted a physical examining facility for the commissioned officers of the division, handling about thirty of these daily.

Because of the rapid influx of hospitalized cases of ivy poisoning of severe degree, a controlled experiment was decided upon. One group of patients received two daily injections of ACTH 40 units; antihistamine was given thrice daily (Benadryl 25 mgm.); phenobarbital was used as an evening sleeping medication, and calamine lotion was applied topically. A second group was treated similarly with one exception. Instead of calamine topically, a proprietary lotion containing zirconium, an antihistamine, menthol, and camphor was applied to the skin lesions. Since thirty cases were hospitalized the results could be considered indicative of the efficacy of the two courses of therapy. The first group required about six days for the acute phase to subside, whereas the second group rapidly recovered in about three days.

A steady stream of mild cases was treated on an out-patient status. The treatment here was use of a skin detergent (Phisohex) with copious water and then application of the zirconium lotion. The results were uniformly excellent. It was ascertained that where individuals were able to wash thoroughly after exposure they suffered mild or no skin lesions.

Considering the large number of casualties produced in a short period of time and the subsequent strain on the medical facilities available, one cannot help but draw an analogy to the effect of chemical vesicants such as mustard gas and lewisite.

Based upon our clinical experience in the controlled experiments, the following regimen is offered as a suggestion for the future.

1. A training course of identification using suitable training aids should precede

movement of troops to camp. This course should serve to familiarize personnel with all plants of poisonous potential.

2. Individuals should be equipped with a suitable detergent for individual decontamination, and also with a cream-base zirconium and antihistamine preparation for first-aid.

3. Severe cases must be hospitalized early.

4. ACTH 40 units given by injection twice daily may be helpful.

5. Sedation prevents the restless sleep and unconscious scratching.

6. Zirconium lotion should be used in hospitalized cases.

It is also recommended that the Medical Department in consultation with the Chemical Corps discuss the decontamination of personnel by field type portable showers, and decontamination of clothing, bedding, and equipment by use of steam.

Many individuals have deluded themselves that they are permanently immune to the toxins of the Rhus family. Introduction of the potent toxin through breaks in the skin, or prolonged or heavy exposure or contact, especially if perspiring profusely, may destroy any prior immunity and sensitize the person to Rhus toxin permanently. In those individuals with a known history of sensitivity, it is recommended that they receive a course of prophylactic immunization. There are oral and parenteral preparations of proven clinical value readily available.

A final word of caution. Many cases of recurrence have been reported when patients discharged from hospital returned to their barracks. These are due to re-exposure to Rhus toxin present in their clothing or bedding. The remedy is obvious and consists of laundering or steam sterilizing the offending garments.

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ARMY SURGEON GENERAL'S MEDICAL MEETING

Sternberg Auditorium

Walter Reed Army Medical Center

Washington, D.C.

April 21—8:15 P.M.

Speaker: The Honorable Arthur S. Fleming, Secretary of Health, Education, and Welfare

The Emerging Role of the Medical Service Corps Officer in the Evolution of the Army Medical Service

By

CAPTAIN JOSEPH ISRAELOFF, MSC, *U. S. Army*†

SPECIALIZATION, no less than the limited number of available medical officers, has created for the Army Medical Service facets of leadership and organization unique to its long history. These same phenomena have also determined the role of the Medical Service Corps officer in today's Army, and have after many years finally fixed the pattern of his activities.

Beginning with an initial appointment of nine Sanitary Corps officers in July 1917, from which corps the present Medical Service Corps traces its origin, the history of the Medical Service Corps is marked by the delegation of progressively broader spheres of responsibility to its officers by succeeding Surgeons General. It has been over a decade since the corps has found its niche within the Army Medical Service and within the Army itself. This is a result of two factors: one owing to the abilities and aspirations of the Medical Service Corps officer himself, the other to the opportunity afforded medical officers to specialize by being relieved of many staff and administrative responsibilities associated with the operation of a vast and complex medical service. This article develops the latter factor with regard to its effect on the Medical Service Corps of today and of the future.

ARMY RESIDENCY PROGRAM

In 1946, paralleling civilian medicine's interest in specialization, the Army Medical Service established resident training programs at its named teaching hospitals for Regular Army Medical Corps officers. Today, the Army Medical Service is attracting an ever increasing number of the country's young physicians to residencies in some twenty-two specialties of medicine and surgery. Because of this trend, the majority of the Regular Army's Medical Corps officers are either in a residency or following career patterns revolving about their specialties. Although a number of these officers, early in their careers, attend a 22-week Army Medical Service Officer Advanced Course that is designed to equip them for future responsibilities as command and staff officers, their interests remain essentially in medicine.

The trend toward specialization among medical officers, as well as their ability to now devote a considerable portion of their attention to clinical medicine, have resulted in some basic changes in concept regarding the role of many Medical Corps officers in the Army.

EARLY MEDICAL CORPS OFFICERS

From the earliest days of the Medical Department, Medical Corps officers have been both military officers as well as physicians. They were expected to be, and were in fact, thoroughly conversant with those purely military duties necessary to direct the varied activities of the Medical Department. Medical Corps officers were proficient in their responsibilities as commanders and staff officers, and by far the majority of them were firmly grounded in the day-to-day routine of running a military medical establishment. They were familiar with all pertinent Army regulations, they could cope with the command, staff, and administrative details of their jobs, they were able to develop and implement training programs for the men under them, and they could prepare the complex logistical plans prerequisite to the support role of the Medical Department in the event of war. They were also able, at the same time, to take their turn in military

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hospitals and carry out their responsibilities for the medical and surgical care of the soldiers in their command. By far the majority of these Medical Corps officers enjoyed their dual military and medical role.

World War II

This dual role of the Medical Corps officer was justified by subsequent events of World War II. The greatly increased size of the Medical Department placed a high priority on his experience as a commander and as a staff officer. Necessity forced many Medical Corps officers to relinquish the professional aspects of their dual role to the newly commissioned civilian physicians in the service, while they themselves devoted all their knowledge, experience, and energy to help create a Medical Department which in the European Theater of Operations alone numbered, just prior to D-Day, 132,705 men and women.[1]

With the end of World War II, a large number of Regular Army Medical Corps officers found they could no longer return to their former dual roles in the Medical Department; they were no longer able to function in a military as well as in a clinical capacity, as was the case before the war. The vast majority of civilian physicians who helped provide the medical support for the Army during the war departed to resume their civilian careers. The Army, however, never again reverted to its peacetime strength which, as late as 30 June 1939, comprised only 13,039 officers, 775 warrant officers, and 174,079 enlisted men.[2] Its strength since the end of that war remained high, approximating three-quarters or more of a million men. For this reason, and because of a dearth of younger men entering the Regular Army who could assume some of the command and staff responsibilities of the Medical Department, many pre-World War II Medical Corps officers were required to carry on their same wartime functions as commanders and staff officers. Those of the younger physicians who were attracted to the Army were attracted mainly because of the opportunities for residency training and thus were relegated essentially to clinical medicine.

Today, the limited number of Medical Corps officers in the service, as well as their predominant interest in clinical medicine, have created broader areas of utilization for Medical Service Corps officers. The maximum utilization of officers in this corps and their greatest contributions to the Army occurred, however, during the major wars in which this country was involved. Wartime periods are normally marked by shortages in manpower and materiel. Medical Corps officers have always been among the scarcest categories of personnel during a war, while the need for their services during these periods always increased many fold over normal peacetime requirements. As a result, such areas as sanitation, many of the laboratory specialties, medical administration, medical service logistics, training, and operations were assigned to paramedical personnel who had either previous formal training in these fields or had served with the Medical Department over long periods of time as career soldiers.

Corps of Medical Cadets

During the Civil War, non-physicians served for the first time in officer-type activities with the Medical Department. The Medical Corps officers available at that time were not nearly adequate to cope with the 639,568 casualties resulting from that war. To assist the overworked surgeons at the general hospitals, a Corps of Medical Cadets was organized who served as surgical dressers and as ambulance attendants in the field. This group of men performed functions very similar to those of Medical Administrative Corps officers of World War II who were assigned as Battalion Surgeons' Assistants at battalion aid stations in the combat zone.

War Department General Orders No. 54, dated August 10, 1861, published details of Public Act No. 38, establishing this Corps of Medical Cadets which was essentially the precursor of the Medical Service Corps of today. This Congressional Act specified that

the duties of the Cadets would be to act as dressers in the general hospitals and as ambulance attendants in the field, under the direction and control of medical officers alone. They were to have the same rank and pay as military cadets at West Point. Their number was to be regulated by the exigencies of the service, but at no time were they to exceed fifty. The corps was to be composed of young men of liberal education, students of medicine, between the ages of eighteen and twenty-three, who had been studying medicine for at least two years, and who had attended at least one course of lectures in a medical college. They were to be enlisted for a period of one year, and subject to the Rules and Articles of War. The law provided for their replacement by an additional fifty Cadets upon the termination of the period of appointment of previous groups.[3]

Surgeon General C. A. Finley, in a report[4] to the Secretary of War on November 13, 1861, indicated that these Cadets performed great services in the field and in hospitals and increased the efficiency of the Medical Department markedly.

Establishment of the Ambulance Corps

From the earliest days of the Civil War, both sides in that conflict were plagued by shortages of medical officers. One of the first attempts at relieving professional officers of duties not directly involving skills utilized in the care and treatment of the sick and wounded was a House of Representatives act of early February 1863, proposing the establishment of an Ambulance Corps.[5] This act provided for the special enlistment of ten to twelve thousand men and the commissioning of four to five hundred new officers to serve as noncombatants under the Medical Department. Although approved by General McClellan, it was opposed by both General Halleck and Secretary Stanton and subsequently died in the House. The proposed new officers comprising the Ambulance Corps were to be nonprofessional officers involved mainly in the evacuation of casualties.

It was not until March 11, 1864, that Congress finally approved the organization of an Ambulance Corps; however, Surgeon Jonathan Letterman, at the time Medical Director of the Army of the Potomac, succeeded in organizing an Ambulance Corps by General Orders No. 85 of that Army, dated August 24, 1863, of much the same provisions as the Act of February 1863. Letterman's Ambulance Corps not only was instrumental in vastly improving the medical service of the Army of the Potomac, but also served as precedent for the utilization of nonprofessional officers with the Medical Department. General Orders No. 85 provided for a captain to serve as commander of each Ambulance Corps, based upon the Army Corps, one 1st lieutenant for each division, one 2d lieutenant for each brigade, and one sergeant for each regiment. While the officers were detailed from the regiments of the respective divisions, this was the first instance where commissioned officers other than physicians served with the Medical Department.

The Ambulance Corps of the Army of the Potomac served also as the blueprint for the act of March 11, 1864, which established an Army-wide Ambulance Corps and formed the basis of ambulance organizations of most of the armies of the world until World War I.

The Hospital Steward

Still another example of the early use of nonphysicians with officer responsibilities was the hospital steward. Regimental medical personnel during the early days of the Civil War consisted of approximately 25 men in addition to the surgeon and assistant surgeon.[6] This group included 10 men detailed for medical functions, members of the regimental band, and a hospital steward. The hospital steward was the only one of the group permanently assigned to the surgeon. He served as a warrant officer, ranking above the first sergeant of a company. The hospital steward was presumed to have a knowledge of pharmacy, be familiar with the art of minor surgery, be able to apply

bandages, dressings and splints, extract teeth, apply cups and leeches, as well as have a knowledge of cooking. Men serving as hospital stewards were usually pharmacists, medical students, and those who had some earlier service with the Medical Department or familiarity with civilian hospital work. In 1864 hospital stewards were given their appointments only after they had first appeared for examination before a board of three medical officers.

The Dodge Commission

By the end of the Civil War, in the spring of 1865, the Union Army was the most powerful military force in the world. Shortly thereafter, as at the end of every war fought by this country before and since, the Army's strength was reduced drastically. By a Congressional Act of July 1866, the military strength was fixed at 54,302 men. This strength was reduced to 37,313 in 1869 and to 27,472 in 1876.[7] Army activities comprised mainly short-lived Indian campaigns and routine garrison life. The Medical Department of this period was proportionately small, and with the aid of contract surgeons the Department was able to meet its limited medical responsibilities. As a result, the need for a corps of paramedical personnel was practically nonexistent. Available Regular Army Medical Corps officers were able to accomplish the administrative tasks necessary for the operation of the department.

It was not until the outbreak of war against Spain in April 1898, when the existing Medical Department found itself ill-prepared for the problems of an Army destined beyond the frontiers of this country, that some thought was again given to the possible utilization of an ancillary corps of medical personnel. Major problems of the day, it will be remembered, were those concerned with sanitation and disease. Shortcomings in the Medical Department led to the creation of the Dodge Commission, a large portion of whose report emphasized the poor quality of administration in the department. Because the Spanish-American War lasted somewhat less than four months, the need to meet the problems associated with administration and sanitation by the organization of a corps of paramedical personnel never reached fruition.

Establishment of the Sanitary Corps

Although Medical Department planners were determined that the medical débacle of the Spanish-American War should never again occur, the Army was once again placed on an austerity basis and the department was faced with providing medical support with a minimum of personnel and supplies. With the outbreak of World War I in Europe in 1914, the country found itself divided on preparedness. Secretary of State Bryan resigned because he thought the administration was following too aggressive a course. Even President Wilson as late as 1917 believed that it was not necessary for this country to prepare for war. Military planners, however, were not as certain as the president. They had succeeded in June 1916 in winning a major piece of military legislation —the National Defense Act of 1916—which proposed increasing the size of the Army to 175,000 over a period of five years. This act also provided for the "nationalization" of the Militia or National Guard. Medically significant, the act also served as the vehicle for the subsequent establishment of the Sanitary Corps based upon the recommendation of Surgeon General William C. Gorgas.

General Gorgas was very much aware of the mistakes of the Spanish-American War, and he was insistent that there not again be experienced the low level of sanitation at the large training centers that were being established in the country. The rapid increase in the size of the Army, from 213,557 on 1 April 1917 to 3,685,458 by 11 November 1918, with proportionate increase in size and responsibilities of the Medical Department, resulted also in command, staff, and administrative problems that could be resolved only with the assistance of a corps of nonprofessional personnel. That the Sanitary

Corps succeeded in assisting the Medical Department during this period in coping with command, staff, and administrative responsibilities is evident by the numbers in which its personnel were utilized. On 31 July 1917 there was a total of nine Sanitary Corps officers on duty with the Medical Department. By the end of the war, 2,893 Sanitary Corps officers saw service with American troops wherever they happened to be stationed.

Sanitary Corps officers during that war served in the Office of The Surgeon General, and also distinguished themselves by service as sanitary engineers, supply officers, chemists, adjutants, mess officers, laboratory officers, X-ray technicians, psychologists, accounting experts, purchasing agents, epidemiologists, as well as in many other assignments so necessary to the smooth functioning of the Medical Department. This was the first example where, on a large scale, nonmedical officers were able to relieve Medical Corps officers so that they could devote their full time and attention to the care and treatment of the sick and wounded. World War I ended in victory for the United States and the Allied Powers. The Medical Department played no small part in that victory. Unlike the criticism heaped upon it during the Spanish-American War, the Department's activities during World War I, owing in large measure to a better system of command and administration, won the highest praise from military commanders and government officials alike.

Not having Regular Army status, upon the termination of hostilities the Sanitary Corps was drastically reduced in strength. The vast majority of officers who served with this corps during the war were either discharged from the service or joined the Sanitary Section of the Quartermaster Corps. However, during the period between the two World Wars, the Sanitary Corps Reserve was kept active, and a report of The Surgeon General in 1928 indicated that there were 497 officers assigned to this Reserve Corps. The Sanitary Corps did not again play an active role in the Medical Department until World War II, when they were recalled to active duty and served creditably for the duration of that conflict.

The Medical Administrative Corps

World War I proved the value of paramedical personnel to the Medical Department, and upon the termination of the war responsible Medical Corps officers were quick to secure approval for a permanent corps of paramedical personnel. Foremost among the proponents in this regard was Surgeon General Merritte W. Ireland, who was instrumental in the establishment on 4 June 1920 of the Medical Administrative Corps, Regular Army and Reserve Component.

The original personnel authorization for the Medical Administrative Corps was 140 officers. Officers were to be selected from among former Sanitary Corps officers and from among qualified Medical Department non-commissioned officers who had at least five years enlisted service with the department. With reduction in the size of the Army, however, the authorized strength of the Medical Administrative Corps was cut in 1926 to only 72 officers. Throughout the twenty-one year period, 1920-1941, the Regular strength of this corps varied according to the legislative actions of Congress. On 30 June 1941 there were only 61 Regular MAC officers on duty while the entire Medical Administrative Corps Reserve totaled only 1,048 officers. Congressional legislation also made changes through these years in the methods of appointment to this corps, and by an Act of 1936 only pharmacists between the ages of twenty-one and thirty-six were authorized appointment to the corps.

Congressional legislation limited the number of personnel in the corps and revised methods of appointment to it, but it did not limit the urgent requirement for its officers by the Medical Department. All through the 1920's and 1930's Medical Administrative Corps officers were thinly scattered throughout Army posts all over the country and in

those overseas stations where American troops were stationed. They served in hospitals and in other patient-care facilities, as well as with medical field units. They proved invaluable to Medical Corps officers by relieving them of onerous staff and administrative responsibilities. Because of a shortage of line officers during this period, Medical Administrative Corps were frequently selected to perform a number of post and station functions usually assigned to officers of the line. They were a much sought after group, and were especially appreciated by hard pressed Medical Corps officers.

In July 1943 Congress enacted a law establishing a Pharmacy Corps as a Regular Army Corps of the Medical Department. Medical Administrative Corps personnel, Regular Army, were transferred to this newly-created Pharmacy Corps. The Medical Administrative Corps Reserve Component Officers on active duty continued to serve with the Medical Department,— but as officers in the Medical Administrative Corps, Army of the United States.

World War II, as of this writing, is recent enough to be remembered vividly by many officers currently on active duty with the Army Medical Service. That war marked the true emergence of the Medical Administrative Corps officer. On 30 June 1941 the corps numbered only 1,109 officers. By August 1945 the corps comprised 22,425 officers serving with the Army all over the world. Their contributions to a Medical Department that cared for a total of 14,700,000 patients admitted to hospitals in the United States and overseas and that evacuated from overseas a total of 568,000 patients cannot be underestimated.[8] Among the fields and activities in which they played a most significant role were those concerned with logistics, hospital administration, medical laboratory, command and staff, pharmacy, training, personnel management, sanitary engineering, medical entomology. Medical Administrative Corps officers saw extensive frontline action with combat divisions in every theater of operations, and shared the glory of the 82nd, 101st, and 11th Airborne Divisions in the Salerno, Sicily, Normandy, Holland, and Corregidor campaigns.

Organization of the Medical Service Corps

The successful utilization of Medical Administrative, Pharmacy, and Sanitary Corps officers during World War II provided the impetus for the establishment on 4 August 1947 of the Medical Service Corps as an integral component of the Army Medical Service. Paramedical officers within the framework of the medical service was henceforth to be as firm a concept as the need for an Army. Officers of the Sanitary, Medical Administrative, and Pharmacy Corps had proved themselves during two major wars. The Korean War provided additional evidence as to the value of these paramedical personnel. Logistic and administrative problems associated with the medical support of millions of men stationed and fighting all over the world required highly developed skills other than purely medical. Many physicians who formerly had to divide their efforts between two responsibilities could now devote their full attention to the care and treatment of patients. The effectiveness of the medical service was more than ever to be dependent upon the team concept, and officers of the Medical Service Corps were very much a part of that team.

The Medical Service Corps today is a young and vigorous corps, preparing to better adapt itself to an Army undergoing rapid changes in organization and methods of operations. As of March 1959, there were 3,600 MSC officers on active duty, of which number 129 were medical and dental students. Significant to the corps, also, are the approximately 7,800 MSC officers in the Army Reserve and the 1,250 MSC officers in the Army National Guard of the United States. The recent Regular Army Augmentation Program has increased the Regular Army strength of the corps from approximately 880 officers in 1957 to 1,240 by 31 March 1959. Authorizations for the Regular Army of the corps, subsequent to 1963, are aimed at a maximum of 2,000 officers.[9]

To equip themselves better for the varied and complex requirements of their role within the Army Medical Service, over 1,200 Medical Service Corps officers are presently taking off-duty undergraduate and postgraduate courses at colleges and universities in this country and abroad. In addition, increasingly larger numbers of MSC officers are graduating from the Command and General Staff College and the Army Medical Service School's Hospital Administration Course. The latter course is affiliated with Baylor University and enables graduates to earn a Master's degree in this growing profession.

Highly qualified academically, 2.41 percent of the Medical Service Corps' officers have PhD degrees, representing 29 percent of all such degrees in the active Army; 11.03 percent of the corps hold Master's degrees; and 4.3 percent of the corps' officers have completed one or more years of postgraduate training leading to a degree.

Medical Service Corps officers continue to serve in the many fields for which the Army Medical Service has responsibility. Officers of the Pharmacy, Supply, and Administration Section, which comprises approximately 85 percent of the corps' officers, specialize, as the name implies, in pharmacy, supply, and all phases of administration including command of certain AMEDS units; hospital administration, comptrollership; logistics; operations; training; medical intelligence; procurement; management engineering; aviation; as well as many other specialities. High ranking Army commanders have properly recognized the skills possessed by Medical Service Corps officers and have frequently commented favorably upon their value to the Army. Today they are being utilized in top level general staff assignments including the offices of the Secretary of Defense; Assistant Secretary of Defense (H & M); Deputy Chief of Staff for Personnel; Deputy Chief of Staff for Logistics; Counter Intelligence Corps; Army Security Agency; Office of Defense Mobilization; and in other branch immaterial assignments.

Over 40 MSC officers have been selected for the Army Officer Logistics Program and more than 60 MSC officers serve in advisory assignments with Military Assistance Advisory Groups (MAAGS) and Missions in Greece, Turkey, Eritrea, Viet Nam, Thailand, Korea, Iran, Formosa, Peru, Paraguay, Bolivia, Brazil, Colombia, El Salvador, and Nicaragua.

Approximately 15 percent of the officers in the Medical Service Corps are assigned to the remaining three sections of the corps —the Medical Allied Sciences Section, the Sanitary Engineering Section, and the Optometry Section. Medical Allied Sciences officers specialize in the sciences supporting total medicine in the fields of bacteriology, serology, biochemistry, toxicology, microbiology, nuclear science, medical entomology, clinical psychology, psychiatric social work, and immunology.

Sanitary engineers specialize in the engineering aspects of the medical service pertaining to hospital construction, industrial hygiene, water supply, waste disposal, housing, insect and rodent control, and in the investigation of camp and construction sites.

Officers in the Optometry Section specialize in the techniques and procedures that include mechanical optics, visual surveys, refraction, and visual training.

The Act of 1947 establishing the Medical Service Corps, divided the corps into the four sections discussed. The table below depicts the relative strength of these sections at the time of the corps' establishment and today. These changes in strength are normally made in accord with experience obtained on actual personnel requirements and

SECTIONS OF THE MEDICAL SERVICE CORPS

Section	Strength Percentage	
	1947[10]	1959[11]
Pharmacy, Supply, and Administration Section	60%	83%
Medical Allied Sciences Section	30%	11.5%
Sanitary Engineering Section	8%	1.5%
Optometry Section	2%	4%

utilization. While many senior officers of the corps do not view with favor the division of the corps into sections since, they believe, such division encourages factionalism, a number of considerations are involved that preclude a change in the near future.

Because of the number of officers comprising today's Medical Service Corps and their increased responsibilities in many areas of Army activity, attention is being given to amend appropriate legislation so that the corps would be authorized officers of general rank. Proponents of this plan point out that other corps within the Army with much smaller total strength in officers are authorized general officers, and that restricting this rank in the Medical Service Corps is discriminatory. The legislative considerations involved, however, are complex and there will be required extensive study and effort before the appropriate acts can be amended.

Summary

The Medical Service Corps has emerged within a relatively few years as a vital and integral component of the Army Medical Service. The corps' present status is a direct result of the size, complexity, and increasing responsibility of the Army Medical Service. Its stature is a tribute to the drive and willingness to serve of the individual officer of that corps, past and present, who proved himself in both war and peace.

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ADMIRAL BRADLEY RETIRES

Rear Admiral Bruce E. Bradley, Medical Corps, U. S. Navy, who has been Commanding Officer of the National Naval Medical Center, Bethesda, Maryland, retired March 31 after more than 33 years of active duty in the U. S. Navy. He will become the Medical Director of the Bankers Trust Company of New York City.

Admiral Bradley was commissioned in the Medical Corps of the Navy immediately following his graduation from the University of Virginia School of Medicine in 1926. During his Naval service he has held many positions of great responsibility. Prior to the position which he was holding at the time of retirement he was Deputy Surgeon General of the Navy, an office which he held for over four years. During World War II he served in the Asiatic-Pacific Theater. His selection for the rank of Rear Admiral was approved by the President on August 9, 1954, and confirmed by the Senate to date from July 1, 1954.

Necessary Ingredients for Solution of Problems in Nursing*

By

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RESEARCH in nursing is new and young. Twenty years ago I taught a course at the University of Minnesota called "Experiments and Problems in Nursing." Each student in the class chose a nursing procedure of some kind and experimented with ways to improve it. They set up control situations and made statistical analyses of their observations and sometimes tested bacteriological and other aspects of the problems in laboratories. So short a time as 20 years ago, we did not call this research.

From much of the talk about research in nursing today one might conclude that it is a fad and that a lot of people are trying to get on the bandwagon and give wonderful enthusiastic lip service to the idea of doing research. But we are going beyond that point. We know that research means willingness to devote ourselves to grinding repetition and to tiresome and sometimes unrewarding work; and nursing researches show evidence of this effort. Speakers here have described researches in other fields. One mentioned trying 1600 drugs before the right one was found. Nurses who are only beginning to think about research will realize that they may have to try 1600 ideas before they find the right one. This is the kind of gruelling work that research entails. It is not just something glamorous, glorious, and fancy, and always successful.

THREE INGREDIENTS OF RESEARCH

I like to think of the ingredients of research as three: phenomena to observe; a plan of observation; and an observer. The phenomena to observe in nursing are practically limitless. They are found in the behaviours of people. These behaviours, I would say, are biological and social. We observe patients as they move toward getting better or getting worse. This may be both biological and social. Nurses have opportunities to observe behaviours of people in many kinds of places. We see patients and hospitals of many types—long-term and short-term. We see patients in doctors' offices, patients in schools and industry, and all kinds of places.

Among the people we observe are the families of patients seen in hospital or in their homes. We observe ourselves and other nurses. We observe nurses as they practice curative nursing and as they practice preventive nursing. We observe students as they are learning nursing or other nurses as they are teaching nursing. We observe young women and young men as they are deciding to learn nursing. We observe other personnel who support nurses—all kinds of nursing personnel. We observe nurses administering. These behaviours are the phenomena available for us to observe and to investigate.

We nurses are considered good observers and accurate reporters. We note differences and changes in behaviour. Every nurse who reports accurately a change in a person's behaviour from what was expected is making pertinent and reliable observations. This is all a part of nursing.

Some nurses go on to the next stage when they are making observations. They begin to note that two characteristics or types of behaviour may vary together. We get hunches as to why this may be true. These hunches may be stated in the form of questions which we seek to answer. These hunches may become hypotheses.

If we wish to test a hunch or hypothesis, we need a plan of observation, a pattern or a protocol of a research. It is a pattern for making observations that I have called the second ingredient in research.

* Presented at Nursing Research Conference conducted February 24-March 7, 1959, at Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, D.C.

Formulate Question

The first step in making a plan for a research is to formulate the question or problem clearly. Many researchers say this is the most difficult step of all. The way in which the problem is formulated governs the activities that go on in the research. It governs the method used in the research. It governs the kinds of data that are to be collected. It governs the scope of the hypotheses which are to be tested.

Graduate students who have written theses and dissertations know how important is the clarity with which the problem is formulated in the first place. When we are not clear in stating our problem we sometimes waste effort. I have been watching a certain piece of research over several months. Each time I hear about it, the major problem has been changed slightly, and yet the research is going on all the time. It's my personal opinions that this research will not proceed successfully until the researcher decides what the question really is. Some day the decision will be made and some of the work that has been done in the past will turn out not to have been pertinent. I don't mean to say that we should never change the problem. Of course we must do so and must make some false attempts. But these attempts should be seen as attempts to formulate the problem and not attempts to solve it.

I am not speaking here today about the selection of a problem. I am taking it for granted that there are hunches and experiences and daily observations which have led us to the problem we want to investigate. The problem rises out of our experience. The problem is so appealing, so demanding that we cannot leave it untouched. What I am saying here is that having located the problem, making a clear statement of it is the most important first step, and that this is a difficult one.

Formulate Hypotheses

The next step is to formulate hypotheses as to the answers or solutions of the problem. Our guesses or hunches which arose from our first observations and led us to think the problem a useful one to investigate then become some of these hypotheses. These, too, must be carefully and clearly stated and only a few can be tested.

The next step in the plan for a research is to decide what data we need and how to collect that data systematically. We also plan how to analyze that data and how to draw conclusions from our analysis of the data. This drawing of conclusions involves reasoning. Often the reasoning is statistical reasoning. We plan statistical tests of the reliability of our reasoning.

To make valuable hypotheses or guesses as to what are the accompaniments of certain behaviours, or what are the meanings of the behaviours or phenomena we observe, requires knowledge of one or another science. For the nurse investigator more knowledge of a science than she posseses is often required. The investigator then must go about learning that science in order to secure the principles and theories and concepts she is to use as building blocks in testing her hypotheses. In this decision expert advice should be sought.

Advisors and Consultants

Here I would like to make a few comments on the use of advisors and consultants. Go back to the question—is this problem researchable? A nurse investigator will talk to many experts in the discussion of this question. She is likely to get conflicting advice about how to limit the problem and about its worth. The responsibility for choosing experts whose advice is to be sought and for resolving the conflicts in those advices rests with the investigator herself. Advisors have their biases. Some biological scientists, for example, would state that no problem in the realm of social science is researchable. An investigator chooses her expert—whether it is on the question of researchability of the problem, methods of research, types of statistical reasoning, and/or reliability of conclusions. If she cannot make her way through the maze of conflicting advice, she is probably not ready to undertake the research.

Now let's chat about the level of participation in research by nurses. Most of us have had some experience, I think, in assisting

physicians in clinical research on patients. We have cared for patients who are subjects of research. Sometimes we did this unknowingly; that is, we did not know that the patient was being researched upon. We don't learn much about research when we do it that way. Sometimes we do it knowingly and if we are interested, we can find out a great deal about the clinical research in which we are participating as data collectors and as recorders of observations. This is a good way for a nurse to have her first taste of research.

Another way nurses participate in research is to become observers for investigators of nursing problems. In practically no piece of research is the collection of data carried on entirely by the principal investigator. Those nurses who help collect the data learn about research. If one of you should be the principal investigator, I would hope that you would look upon the nurses who help you as potential researchers themselves. The ultimate stage is reached when the nurse herself becomes a principal investigator. She graduates through stages of assisting others in clinical medicine or nursing researches to collaborating with others, to conducting research herself.

Research takes a lot of time. Think now of the large research departments in practically every major industry. Think back ten, twenty, thirty years ago when this industry did not have a research department. Occasionally a man in the industry wanted to do a piece of research and if he were insistent enough, he might get a chance to do it, particularly if it looked like a profitable project. Now the industry has a research department. That department collects ideas and hunches from any one willing to share them with the researchers, and it draws its personnel from among the experts in the field and from the likely workers in the industry who have the mind and background for research.

We in nursing are in the stage of getting the occasional idea. Perhaps some years from now there will be research departments in nursing in major institutions and agencies. This would be a recognition that research takes time and that it's hard to do along with another job. On the other hand, a great deal of the good research of the world has been done by people who had a job and did research besides. We are often told that a worker with a burning desire to investigate a problem will do so no matter how hard he has to work.

Time Required for Research

Research takes time—it takes time in educational institutions also. Graduate departments in universities and professional schools like medical schools are often the fountainheads of research and new knowledge for these professions. I am concerned about what research goes on in the graduate schools of nursing, research carried on by the faculties of these schools. In a medical school a large proportion of the total time of all the professors goes to research. The reputation of the school is sometimes determined by the quality of the research carried on by its faculty. Research is considered part of the obligation of faculties of graduate schools, not only in order to add to the knowledge of the profession but to enliven the teaching these professors do.

Research takes time. Do the professors in graduate programs in nursing have sabbatical leave and do they use it for research? Do they have intermittent terms of research and teaching? Do they have terms with light teaching schedules so that they may undertake research? I think the answer is no to most of these questions. In fact, the teaching load itself is over-heavy and continues uninterrupted. These are the professors who advise the graduate students in their research —more students than they can advise effectively, and in research methodology in which they themselves may not have achieved expertness.

Research takes time and it takes money. It takes more than that—it takes capacity and interest and a desire to do research. I have confidence that if we have the latter, we will find the time and money.

How do we learn to do research? First of all, I do not believe that we make a decision as to whether each one of us is going to be a medical nurse or a surgical nurse or a re-

search nurse. I do not believe we look at research as a phase of our profession open for us to enter, or as a specialty within nursing which one may adopt. I think rather that we should think of research as an added string to the bow. A nurse does not say "I'll leave off all that I'm doing and embrace the field of research." Of course, this does not mean that there is not an occasional genius among us who gets an idea and who leaves her position and goes off and gets a sponsor somewhere. But the bulk of our researches will arise out of our own experiences. We must be specialists in a field before we undertake to conduct research in that field. A nurse must be the most expert, soundly based, knowing medical nurse that we could imagine, and then do research in medical nursing. She should not skip from being an amateur medical nurse to being a premature researcher in medical nursing.

And so to learn to do research we become experts in our own field. We study the basic sciences that underlie the field of our major interest. If the field is medical nursing, the basic science is likely to be physiology. Whatever the field of nursing there are sciences that contribute to the problems that intrigue a nurse most, and it is these sciences that she must study hard. You will hear someone say "When a nurse studies enough physiology to do research in medical nursing she becomes a physiologist and not a nurse." Recently I reviewed applications for fellowships from graduate nurses. Two of these nurses wished to study anthropology and expected to spend at least three years in such study. Another judge of the applicants said about these nurses that they would have a Ph.D. in anthropology and then be anthropologists, and not nurses. Achieving the doctoral degree in anthropology, however, would make only an amateur anthropologist. These nurses had clear justification for undertaking such study. They plan to use it to do research in nursing on the human relations in nursing.

I am not troubled about whether or not some nurses would become physiologists or anthropologists. I believe that these nurses will use what they learn in these disciplines in order to do research in nursing. Perhaps a nurse does not have to go so far as to secure a Ph.D. in another discipline, such as physiology, in order to do research in medical nursing. Should she become a physiology expert herself or use consultation services of physiologists? Somewhere between these two extremes is the answer, a little closer to learning a lot of physiology than to depending entirely on consultants. It will take a long time, perhaps until there is another generation of nurses, before we have enough graduate students among us who are physiologists and anthropologists and the like, to undertake our researches entirely independently. In the meantime, I think we can use this other method—selecting a problem and getting fine advice about what of physiology we must learn in order to solve that problem.

Learn Research Methods

To learn to do research we must also learn research methods, but knowing a little nursing, very little science, and lots of research methods will not make a nurse researcher. To learn research methods requires practice. I have already mentioned some of the possibilities for practicing—observing and recording—and if the setting is right, practicing the drawing of conclusions. To prepare herself to undertake research, a nurse then needs to be expert in a field of nursing, to have strong background or basis in the sciences underlying that portion of her field in which she wishes to do research and to learn and practice research methodology.

How do we get to this stage? We arrive there slowly, we work with the small problems that come to us every day and think clearly about them. We undertake research on small problems even when we know it will be superficial research. It's still worth doing provided we remember that it is superficial. We are not discouraged. We work hard at building our scientific background. We read reports of researches and learn to judge them. I firmly believe that we are on our way to real reputable, reliable, highly regarded research.

When we look over the research that has been reported in nursing we find a great deal

of it deals with problems of the functions of nurses and other types of nursing personnel. We are sometimes tempted to be a little tired of function studies as to say that we have enough of them. Perhaps this is true, but we have not enough descriptive data about nursing itself.

When we discuss research in nursing with our friends, particularly our medical friends, we are frequently asked what is nursing, and are frequently told that if we could decide what nursing was, we could then do research in nursing. I am not too worried about defining nursing as something separate. In regard to a certain piece of nursing research a physician commented, "this is really research in medical care." I was inclined to agree with him; it was a type of "medical care" to which nurses contributed and for which they could find improved methods.

Team Work Required

Here are the doctor, the nurse, and other health personnel all sharing in a part of the thing that we do for patients to help them get well, or for their families to help them keep well. Thinking about this, I wished I were an artist because I wanted to paint a picture to depict this idea. The picture would be an abstraction. It would have no lines. It would be a hazy thing and I decided that water color would be the best medium. In the middle would be something red and intense, fading out to various shades of red with blurred outlines. Then some of the pale red would go into pale blue, which would go into intense blue on this side and into pale then intense green on that side, and perhaps into yellow on another side. When you look at this picture it would look like a red spot in the middle, fading out into other colors which then led into nebuli of more intense green or yellow or blue. These in turn fading out to the edge of the picture. I think this would represent what this doctor called "medical care." The part of the picture which is blue would be nursing. The blue looked at separately would be intense in its center, but blended into yellow and blended into red in the center of the picture which is medicine. This is the whole picture of what is done to make patients well. We all contribute our color. The colors aren't clearly defined in the whole composition. Perhaps the research project in question would fall in this picture just where red begins to blend into blue. If it fell a little closer to red, a doctor might pick the project to work upon. If it is a little closer to the blue, the nurse could pick this project to work upon. If the problem fell into the intense blue area, certainly nurses should study it. We are all working together for the total picture; not just for our own piece of it.

I have been speaking about the need for descriptive studies of nursing which will show what nursing accomplishes in promoting the recovery of patients. Functional analyses are descriptive researches in a sense but they deal more with nurses than with nursing and with patients themselves.

Educational Research

Another type of research which comprises a large portion of the total is educational research in nursing. It is natural that we nurses would undertake researches in educational methods and the like. The first nurses to seek advanced degrees did so in large proportion in colleges of education. We found these colleges friendly and sympathetic. We find degree requirements in such graduate programs easier to meet than the degree requirements in a discipline, like physiology, for example. By saying this I do not mean to imply that we should do less research in the field of nursing education, but rather that we should do more research in some other fields as well.

Then, too, we will find a fairly large proportion of the researches in nursing which are social science oriented. This, too, is understandable and natural. Social scientists find in nursing human relationships which are interesting to study. We nurses learn principles of social sciences and use them in studying nursing. We are receptive to social scientists and to the concepts in their fields. We feel comfortable with social scientists, and in dealing with social science concepts. It is likely that for sometime to come more nurses will choose to equip themselves in the

field of social sciences and do research in nursing with a social science orientation than will study the biological science field and choose research projects in this field. The crying need is for research in nursing based on biological and physical sciences; not less of nursing research in education or in social science but more in biological science.

The formulation of the scientific bases of nursing I would place in highest priority in the development of better nursing for patients and in the development of our profession and research in nursing. I do not know whether attempts to formulate this base are themselves researches or whether they are to be looked upon as an essential for subsequent research.

Have you ever had the experience of trying to look up in a nursing textbook the scientific justification for some small detail of a nursing technique? If you search in five textbooks you will probably find four different ideas, contradictory and inconsistent, and the fifth book will have no information at all. Listen to the clinical instruction students receive in our best schools—how sound is it scientifically? Some will say that nursing is an art and has no need for a scientific base. But we practice our art in a scientific milieu, not in a museum. Some will say that we have no right to call nursing a profession until we have formulated its scientific base. All of us will grant this formulation is long overdue.

Clinical medicine itself is not a basic science but rather a synthesis and a derivation from the basic sciences. The subject matter of nursing is once more removed. Its subject matter has been strained through the sieve of clinical medicine. This statement is made to show how difficult it will be for us to formulate our scientific bases. It is not made to excuse us from undertaking the formulation of the sciences of nursing.

Summary

Now I should like to summarize these remarks about the ingredients for solution of problems of nursing. We have taken for granted that many of these problems will be solved through research. Three primary ingredients are: phenomena to observe, an observer, and a pattern of observation. We learn to do research by first becoming expert in our own field of nursing, by achieving deeper mastery of the scientific principles which underly our field of nursing and contribute to the solution of the problems we wish to study, and by mastering research methodology. We learn to do research by practicing and we have opportunity to practice when we care for patients who are the subjects of clinical research and when we assist nurses who are studying processes in which we are involved and with which we can assist. Research takes time. Few nurses are given extra time in which to do research. It would pay off if we were given such time. Research takes more than time and money, research requires an intense interest and curiosity and great zeal. Many studies in nursing have been aimed at analyzing the functions of various types of nursing personnel. We need many more descriptive studies of the process of nursing itself and how it affects patients.

To date a predominant portion of research in nursing has been done in the field of nursing education. The next most predominant portion is in the field of social science. We should strive not for less of each of these but for more research in the biological sciences, both for the sake of advancement of our profession and the quality of care we give to people. We should put great effort into formulating the scientific bases of nursing practices. This formulation itself may possibly be a research process.

Some research will be collaborative, particularly that which falls into the shaded areas in the spectrum which is "medical care."

Nursing is young and research in nursing is still younger. We have made rapid progress and an excellent beginning in research. There is much more to come and we all expect that what comes will result in greatly improved nursing services for the people we care for.

EDITORIALS

Armed Forces Medical Museum

ONE of the most interesting places to visit in Washington is the Armed Forces Medical Museum, originally known as the Army Medical Museum.

The Museum is located in the general area of the Smithsonian Institution and is one of the four main divisions of the Armed Forces Institute of Pathology which is itself located in a unique building at the Walter Reed Army Medical Center.

The Museum is now almost one hundred years old and during these many years has collected things medical from all over the world by contributions from the Armed Forces and from private citizens who are interested in having a place which will preserve things of historical medical significance and at the same time make material available to the public eyes.

Approximately 300,000 persons pass through the Museum each year. It would take many trips through to get a real working acquaintance with the many exhibits.

This collection is by no means stagnant. Displays are being constantly changed, new items are accruing to the collection daily. Persons or organizations wishing to make contributions should contact the Director of the Armed Forces Institute of Pathology, Colonel Frank M. Townsend. It is strongly recommended that items not be sent until this contact is made so that proper shipping instructions can be given.

The Medical Museum is not a curiosity satisfying center but a real educational institution. It was started during the Civil War by the Surgeon General of the Army, William A. Hammond. Specimens were directed to be sent to Washington for study in the preservation of life and limb as he was greatly concerned over the number of lives being lost and the number of limbs that were being sacrificed. The practice of sending specimens has continued over the years. To the specimens have been added exhibits, instruments and other things of historical value.

To those who may have something of a historical nature in the medical field and particularly of the Civil War period, the Director extends an appeal to have it preserved at the Armed Forces Medical Museum in Washington.

Citizenship

WE CANNOT relegate to any specialist or technician the job of maintaining the moral fiber of this Nation.

The moral fiber of America is part of the warp and woof of our everyday lives. It begins to take form at the cradle, and just as the babe must have loving care to survive, so must the moral attributes that make an active and devoted people.

It does no good to complain about "the government"—that the government did this we do not like, or failed to do that which we hoped for. We would have the right to spend our time complaining about the government only if we were governed by others —by a despot or a dictator.

As Americans, we govern ourselves. The responsibility rests squarely upon our own shoulders.

When we indict "the government," we indict nobody but ourselves. Too often do we speak about the government as "they." After all, in America it is not "they" but "we" who are the government.

Nor can we afford to be "part-time" citizens—tending strictly to our businesses and our professions with perhaps only an occa-

sional foray to vote on candidates with whom we may be unfamiliar—and leaving to "someone else" the discharge of our most sacred civic responsibilities for the well-being of the Nation.

Citizenship is a full-time job.

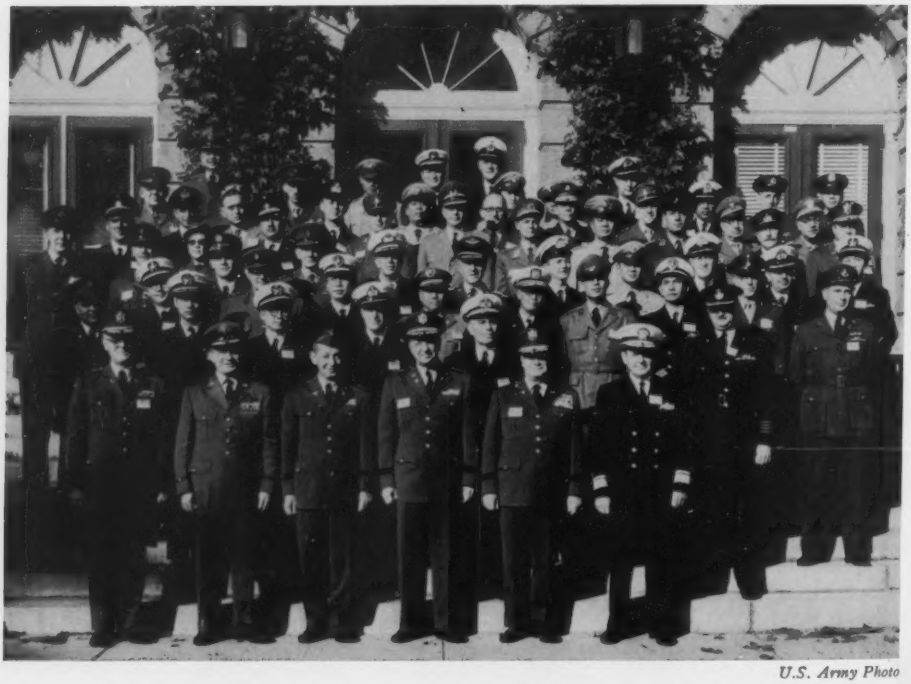
The flower of freedom must be constantly watered if it is to live and thrive. If we care so little about it that we neglect it, it will surely wither and die.

One of the great menaces to America today is just such indifference. The apathetic citizen can be a far greater threat to the Nation than the card-carrying communist.

But, it is my earnest conviction that when Americans apply to citizenship the same vigor, ingenuity, and dedication that they have applied to making a better living, the dangers which lie beyond our horizons will fade.

HONORABLE WILBER M. BRUCKER,
Secretary of the Army.

INTERNATIONAL DELEGATE LUNCHEON, WALTER REED ARMY MEDICAL CENTER, DURING 66TH ANNUAL CONVENTION OF THE ASSOCIATION



U.S. Army Photo

Front Row only (L to R): MAJ. GEN. C. F. ST. JOHN (Commanding General, Walter Reed Army Medical Center), BRIG. GEN. JOHN K. CULLEN (Deputy Surg. Gen., U. S. Air Force), MAJ. GEN. JACK W. SCHWARTZ (Commanding General, Tripler Army Hospital), LT. GEN. LEONARD D. HEATON (The Surgeon General, U. S. Army), MAJ. GEN. WILLIAM E. SHAMBORA (Commanding General, Brooke Army Medical Center), REAR ADMIRAL EDWARD C. KENNEY Deputy Surgeon General, U. S. Navy).

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Around the World

(Ser. III, No. 18)

By

Claudius F. Mayer, M.D.

Réunion is an island department of France, situated in the Indian Ocean, east of Madagascar. It has a population of 310,000 persons. Whether it ever becomes independent remains an open question. Yet, there is no doubt that none of the newly born native states in the backward areas of the world can remain alive without the material and spiritual aid of the White Man, otherwise their independence will lead to enhanced poverty and a relapse into primitive barbarism. In *Réunion*, a team of the public health staff of the World Health Organization has been aiding the local authorities in making a *general survey of the health* of the natives. Such surveys are essential before the introduction of greater health reforms and engineering measures.

As is well known, the new capital of Brazil will be a carefully planned town which will be called *Brasilia*. It will open this year. It will be the first capital in the world which knows in advance the pollen content and the *moulds content of its atmosphere*. The president of Brazil is a medical man, and he sponsored a study of the allergene content of the air above the still unopened city. A year-round investigation was made by members of the Belo Horizonte Medical Faculty, who exposed microscopic slides with thin coating of white vaseline from July 17, 1957 to July 16, 1958. The results of their investigations were just revealed. In the air of the city of Brasilia, only grass pollens were found, probably originating from the grass *"Melinis minutiflora."* Fungus spores were also sporadically noticed, and they belonged to the *"Alternaria"* mould. Hence, the city will be a very pleasant resort for hay-fever sufferers.

But what about the *allergy to Brazilian coffee?* Some members of the University of København have observed certain workers of wholesale coffee firms, of groceries and of cafeterias who seemed to be sensitive to coffee dust. The allergic patients react to the inhaled dust of coffee with vasomotor rhinitis, asthma and Quincke type of edema of the face and neck. They did not seem to have any attack from the drinking of coffee. Many of them were also sensitive to nuts.

The *Directorio Médico Panameño* again appeared this year in a new edition. It brings vital medical information from the small Central-American country. Panama has an estimated 911,000 inhabitants; 65% of them are of mixed blood, 11% are white, 13% are Negro, and 10% are Indian. Panama has 16 governmental *hospitals*, some of which are special hospitals (for tuberculosis, psychiatry, pediatrics), and 11 private hospitals. In addition, the Canal Zone has two general hospitals, one mental hospital, and a leprosarium at Palo Seco. The directory listed 437 *physicians* some of whom are specialists. The rarest specialties in Panama are anesthesiology, thoracic surgery, and "forensic medicine."

According to the notices reaching the Pan-American Health Organization, the rates of *smallpox* cases dropped fourfold during the past decade *in the Latin American* countries. Nevertheless, the disease must still be counted as a major problem of public health. The total number of cases in ten years was over a hundred thousand, and the mortality rate was about 7%.

Some of the difficulties in the eradication of such diseases may be sought in the *native customs and habits of the people*. The same is true for any part of the world. *In India*, for instance, a recent American traveller mentioned that Hindu theological doctrines which prevent the killing of animals hinder the eradication of malaria because even the mosquitoes are animals to some Hindu sects.

Nevertheless, as far as India is concerned, the incidence of malaria has been greatly reduced. In India, the life span of the natives is little more than 30 years. Research in public health in that country is fostered and coordinated by the *Indian Council of Medical Research* which was founded in 1912. Among the ailments of the Hindus, cirrhosis of the liver and peptic ulcer are quite common. The high incidence of the latter is related by many to the highly spiced food. The Hindu diet is deficient in protein, which is again partly due to the Hindu religion and the sanctity of animal life.

There are no dietetic departments in the *Hindu hospitals,* but the patient's relatives come around and prepare the food. Under such conditions, dietetic therapy is hardly possible. The number of schools of western medicine is about 48, and still more are being organized. *Ayurvedic and Unani medical colleges* are also available. Some 50 of them are teaching indigenous medicine, folklore, the power of herbs, roots, leaves, etc. Systematic investigation of the native plants is also carried out in the botany department of the Punjab University at Amritsar, also at the Plant Research Institute at Lucknow.

How the various technical changes may influence the health of man is best seen in the *pottery industry of England.* Formerly, the classical industrial *disease of the potter* was lead poisoning due in part to the lead glazes used. Of course, the industry advanced quite well in respect to health during the war years. Recently, four members of the English factory inspectorate made a health survey in the Stoke-on-Trent area. They found that by the middle 1940-ies the use of low-solubility or leadless glazes became widespread so that the use of any other glaze was prohibited. The other source of lead poisoning was the color used in decorating the ware. This *hazard was also eliminated* from the pottery industry by improved methods of dust control. The risk of pneumoconiosis of the potter was reduced by substitution of alumina for powdered flint in the placing of chine for the biscuit fire. Since 1947, this change has also become compulsory. Work is now in progress on the control of dust in the tile-making processes, and they planned to manufacture a suitable overall for the workers.

Years ago, lead poisoning was a general menace to people. Some clinicians even thought that *multiple sclerosis* is a result of *chronic lead poisoning.* This idea was again revived by a geologist of the University of British Columbia (H. V. Warren) who suggested that most areas where multiple sclerosis has a high incidence are such where glaciation has played an important part in providing parent material for soils. If we compare the epidemiological maps of the disease with geological maps it becomes evident that the terrain of multiple sclerosis has either Eocambrian sediments or granitic *rocks which contain higher than normal quantity of lead.* This lead was worked into the soil by glaciers, and then it has a great chance to enter the body of human beings.

According to its latest Report, the interest of the *Medical Research Council of Great Britain* was focused upon fundamental and clinical *research topics.* Among the former, we find the studies on intracellular organelles, the investigations of cancer-producing viruses (mostly a supplementation of American research), then the ultramicroscopic analysis of minute amounts of substances, and the behavior of the mammalian spermatozoon in fertilization. Among the clinical topics, malaria, trachoma and leprosy are the greatest attractions. Much of the research of this nature is *done in Africa,* especially in *Gambia* where one child out of three still fails to reach adult life on account of malarial infection.

Trachoma is also prevalent *in Gambia* and in the local laboratories the first successful human experimental trachoma infections were made on volunteers, with cultivated trachoma virus. Most of the *leprosy studies* of the Council have been made with the rat leprosy bacillus. A recent interest of the British Medical Research Council is represented by psychiatric research. The Council is interested in the *ways of restraining chronic schizophrenics.* This is a serious problem

in Great Britain where some 37,600 chronic schizophrenics have been living in the mental hospitals for more than 20 years. The council's studies suggest that, apart from the clinical condition of such patients, their resettlement in proper homes (mostly not with the parents) and their employment are the most important factors in the rehabilitation of the schizophrenics. (NOTE: Recently, the Medical Research Council, together with three other research organizations of Great Britain, entered into a collaboration to form a special *Overseas Research Council* for advice and information of the Commonwealth countries.)

Tuberculosis mortality is still very high *in France,* as was announced at the Paris Medical Academy by one of the experts of this medical field. It is six times higher than in the Netherlands, or in Denmark, and three times higher than in Switzerland, and twice as high as in England. Nevertheless, during the past 30 years, a remarkable improvement occurred in this field in France, and, actually, the mortality dropped from a high 214 per M to 24 per M. The ratio of tuberculosis cases among the 7-year old children is 12%, among the 10-year old youth 22%, and among the 14-year old ones 38%. More males than females are found among the tuberculars in France.

Teams of the World Health Organization undertook several surveys to detect the *prevalence of tuberculosis* in various parts of *Africa.* The surveys showed that, while in some countries the situation is not as bad as thought (e.g., in Nigeria), in others the disease is very wide-spread. Thus, in *British Somaliland,* more than 2% of the adult population is probably affected. In *Basutoland,* about 3000 persons out of 600,000 are suffering from active tuberculosis. In *Bechuanaland,* the rate of tuberculosis is 1%. In Kenya, the survey is not yet finished. In *Mauritius,* more than 50% of the people are tuberculin-positive, while at St. Helena, the prevalence of the disease is very low. In *Swaziland,* about 1% of the population was found to have infectious tuberculosis. Since hospitals are but few, the patients must receive domiciliary drug treatment regularly for a year.

Members of the medical and surgical departments of the *University of Cape Town* wished to discover why the *Bantus* are relatively *immune to severe atherosclerosis.* A priori, it was thought that the relative immunity is due to the low coagulability of the Bantu blood. The research team proved, however, that no significant differences exist between the African and the white blood. One wonders whether the relatively deficient diet of the Bantu might be responsible for the native good health.

A handsome volume on *"Psychiatric Services and Architecture"* (by A. Baker et al.) introduces a new pamphlet series of the *World Health Organization.* The title of the new series is *"Public Health Papers."* The first issue of the serial publication attempts an analysis of the plannings and management of psychiatric hospitals, and of the structure and function of various other psychiatric services, prepared by the teamwork of two psychiatrists and an architect who want to create something different from the former gloomy, prison-like insane asylums.

Atmospheric radioactivity is a general problem of the entire world. Now, it has become a special problem for *Switzerland* where *radioactive ash* was found in deposits at some remote sites among the Alps. Some said that the deposits are old. Others attributed them to the fallout of recent nuclear explosions.

In Italy, the Minister of Health proposed a bill to the ministerial council for an amendment of the existing *Italian law on eye banks.* The present law prohibits the creation of such institutions. The draft intends to change the prohibition so that corneas of deceased persons could be used for grafting or for other medical purposes.

Istanbul was the host of a number of rheumatologists during last September. The interest in rheumatology is very great in Europe, and at the 4th *Congress of the European League against Rheumatism* the number of papers was so large (over 150) that the Congress had to meet simultaneously

at four different sites. A few months earlier the Pan-American League against Rheumatism had its meeting in Washington (June). Naturally, the basis of the entire modern rheumatic research is the study of the modes of reaction of the connective tissue which is always ready to respond to any change in the environment or in the general condition of a person. The biochemical basis of this reaction is given by the variability and the transforming capacity of the collagen. Heredity has a certain influence upon the structure of the collagen, but the role of electrolytes and ions is also significant. Close correlations exist between the so-called vegetative situations of mood, and the changes in the connective tissue in the clinical conditions of stress, fatigability, etc. The modern rheumatologist takes all this into consideration when he tries to explain the complaints known as "rheumatic."

The *study of rheumatism* was strengthened in 1925 by the foundation of the *International League against Rheumatism* in the Netherlands. The League met repeatedly before World War II. After the War, it started to function with a congress convoked in 1949 to New York during which the discovery of cortisone had been reported. Since then, the League was split into a *Pan-American and a European branch,* with headquarters at Washington and/or Bruxelles. But the International League has also continued its existence. Its next meeting will be in 1961 at Rome, while the next meeting of the continental branches of the League will be held in 1963.

Let us recall here the findings of a joint committee in England (the Medical Research Council and the Nuffield Foundation) which conducted comparative studies on the *effect of aspirin and cortisone in rheumatoid arthritis.* Observations of two groups of arthritic patients, one under cortisone and the other under aspirin therapy, were carried out for more than four years. It seems that the introduction of cortisone has not materially affected the prognosis of patients developing rhcumatoid arthritis for the first time. There appeared to be *little (if any) difference* between the end results of cortisone and aspirin therapy in the early cases. In the long-term management of the disease, at least during the first four years, aspirin medication proved more often satisfactory than cortisone therapy.

The U. S. Navy Department's Medical Statistics Division recently revealed the result of a *health survey* which the U.S.S. WHIDBEY carried out almost twelve years ago in the *Pacific Islands of the Trust Territory* (formerly known as the Japanese mandated islands). The U. S. occupied these islands during and after the war, and is obligated to provide health service for the inhabitants. To provide better service, the U. S. Navy first conducted a health survey in 1948. The survey included the Marshall, the Mariana, and the Caroline Islands, all NW from New Guinea. The survey examined every native who was present, and investigated and evaluated the food, water, sewage and garbage facilities, general living conditions, native habits and customs. There were fluorographies of the chest, Kahn test for syphilis, tuberculin tests, and stool examinations. Data on three districts (Palau, Saipan, and Marshall Islands) included 22,146 natives. It was found that the casual contact with occupying troops during the war resulted in much improvement of the original sanitary conditions.

For instance, at the time of the *American occupation,* nearly 100% of the indigenous population was infested with hookworm. A mass de-worming program started which caused a noticeable reduction in the parasitism. Yaws was brought under control with penicillin, and practically no case of syphilis was noted. The greatest problem seemed to be that the community latrines are still not favorites with the natives who also prefer coconut fibers and leaves to toilet paper. Fluorographies revealed 1.3% suspected cases of tuberculosis. The median systolic and diastolic blood pressures were between 122-135 and 73-80 for people over 45 years of age. The most prevalent diseases were skin diseases, eye diseases, and respiratory infections. Leprosy was also a problem, to-

gether with degenerative joint diseases, and vitamin deficiencies. At some islands, the natives also had a rate of 8.8 per 1000 for anemia.

Chinese obstetricians are in full agreement with the Russians as to the great value of the so-called psychoprophylactic methods for making the *labor painless.* Originally promoted by Read (1914), the natural birth was further encouraged by Pavlovian conditioning of the mothers long before the child's delivery. This method was *introduced in China in 1952.* In a Peiping Obstetrical Clinic, more than 90% of the deliveries were conducted by the psychoprophylactic method during the past three years. Successful results were seen in 94% of the mothers.

The originator of this method of child-delivery just died a few months ago at Norfolk, England. He was *Grantly DICK-READ* (1890-1959) who had an intuition of the natural method of birth management in 1914, when a young parturient woman who refused to have an anesthesia afterwards told the doctor that she had no pain during labor. Dr. Read first met with great opposition to his doctrine on the part of his English colleagues. Indeed, the National Health Service of Great Britain, which started in 1948, was unwilling to recognize Dr. Read as a gynecologist because he was not qualified by the Board. Therefore, he was not permitted to continue his research work in England. Now, the obstetrical clinics of many countries are investing millions of dollars to build special annexes to the department where young pregnant women can be indoctrinated according to the ideas of Dr. Read, to have painless deliveries.

Night calls are sometimes a problem for general practitioners. It was therefore interesting to see the personal statistics of British physicians who were members of the College of General *Practioners in Southeast Scotland.* Thirty-eight doctors pooled their experiences with night calls in 1956-57. The total number of such calls (calls after 9 P.M., and before 9 A.M. was 1548. A majority of them were made between 9 P.M. and midnight (58.7%); 15.7% of the calls came between midnight and 3 A.M.; 10.1% were between 3 A.M. and 6 A.M.; and 15.5% occurred after 6 A.M. and before 9 A.M. The weekly distribution of the calls showed that the mean number was exceeded on Sundays and Saturdays. It is easy to understand that at times of epidemics the number of emergency calls increased. What made people most alarmed? Respiratory ailments (20%), accidents (14%), troubles with the digestive tract (10%) and with the genitourinary system (10%).

In the opinion of the *Staffordshire School Medical Officer,* the development of children into vigorous adults depends upon the *amount of exercise* they have. The doctor regrets that the children nowadays dislike organized games, and that few of them take daily exercises. They do not walk to school; they ride in school busses. Parents also have neglected muscular exercises. Women and men alike are afraid of any physical exertion. "When the time comes that every normal adult *retires to bed at night tired* from bodily movement during the day which has been sufficient to make him out of breath for a short while"—says the good doctor—"we shall see less ill-health, particularly less heart trouble, and a lowering of the number of cases of neurosis." . . . Multa paucis!

The Sir Henry Wellcome Medal and Prize

COMPETITION FOR 1960

THE competition is open to all medical department officers, former such officers, of the Army, Navy, Air Force, Public Health Service, Veterans Administration, The National Guard and the Reserves of the United States, commissioned officers of foreign military services, and all members of the Association, except that no person shall be eligible for a second award of this medal and prize and no paper previously published will be accepted.

The award for 1960, a medal, a scroll, and a cash prize of $500, will be given for the paper selected by a committee composed of the Association's vice-presidents which reports on the most useful original investigation in the field of military medicine. The widest latitude is given this competition, so that it may be open to all components of the membership of the Association. Appropriate subjects may be found in the theory and practice of medicine, dentistry, veterinary medicine, nursing and sanitation. The material presented may be the result of laboratory work or of field experience. Certain weight will be given to the amount and quality of the original work involved, but relative value to military medicine as a whole will be the determining factor.

Each competitor must furnish six copies of his paper which must not be signed with the true name of the author, but are to be identified by a *nom de plume* or distinctive device. These must be forwarded to the Secretary of the Association of Military Surgeons of the United States, Suite 718, 1726 Eye St. N.W., Washington 6, D.C., so as to arrive at a date not later than 20 June 1960, and must be accompanied by a sealed envelope marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The length of the essays is fixed between a maximum of 10,000 words and a minimum of 3000 words. After the winning paper has been selected the envelope accompanying the winning essay or report will be opened by the Secretary of the Association and the name of the successful contestant announced by him. The winning essay or report becomes the property of the Association, and will be published in MILITARY MEDICINE. Should the Board of Award see fit to designate any paper for "first honorable mention" the Executive Council may award the writer life membership in The Association of Military Surgeons, and his essay will then also become the property of the Association.

NOTES

Timely items of general interest are accepted for these columns. Deadline is 1st of month preceding month of issue.

Department of Defense

Ass't Secretary (Health & Medical)—HON. FRANK B. BERRY, M.D.

Deputy Ass't Sec'y—HON. EDW. H. CUSHING, M.D.

STRENGTH OF ARMED FORCES

As of January 31 the total numerical strength of the Armed Forces was 2,490,843.

SELECTIVE SERVICE

The Selective Service has been asked to provide 6,000 men during the month of April for the Army. This is the same quota as for February and March.

EXHIBIT PRESENTED

"A Century of Naval Medicine" which is a three-dimensional exhibit prepared by the U. S. Navy and E. R. Squibb & Sons was recently presented to the Armed Forces Medical Museum located in Washington, D.C. Much of the material in the display includes things used in naval medicine of 100 years ago, such as surgeon's kits and bloodletting instruments.

Army

Surgeon General—LT. GEN. LEONARD D. HEATON

Deputy Surg. Gen.—MAJ. GEN. THOMAS J. HARTFORD

ASSIGNMENTS IN SGO

Colonel Maurice Levin, JAGC, was recently appointed Chief of the Legal Office in the Office of the Surgeon General. He served in India and China during World War II, and in 1946 was chief defense counsel for the war crimes trials in Shanghai.

Lt. Colonel Ann E. Hogan, ANC, has been assigned as nurse assignment officer in the Army Nurse Corps Branch, Surgeon General's Office.

Lt. Colonel Joseph E. Webb, Jr., MSC, has been appointed Chief of the Entomology Section, Preventive Medicine Division.

Major Ralph C. Singer, MC, was recently appointed Chief of the Environmental Hygiene and Nutrition Branches, Preventive Medicine Division.

DENTAL LECTURES

Colonel Thomas A. McFall, DC, Director, Division of Dentistry, Walter Reed Army Institute of Research, Washington, D.C., has announced the following lectures at the Institute to which all interested persons are invited:

Monday, April 18, 1:00-4:30 P.M., "Removable Partial Denture Service"—Dr. Victor L. Steffel, Ohio State University.

Tuesday, April 19, 9:00-9:50 A.M., "Dental Program—Department of the Army Level"—Lt. Col. James W. Enmeier, DC, USA, SGO.

Wednesday, April 20, 8:00-9:50 A.M., "Postoperative Considerations in Oral Surgery"—Dr. Daniel F. Lynch, Walter Reed Army Medical Center.

Wednesday, April 20, 3:00-4:50 P.M., "Educational Opportunities—Army Dental Corps"—Lt. Col. Richard L. Howard, DC, USA, SGO.

Wednesday, April 27, 9:00-9:50 A.M., "Dental Aspects of the Dependents Medical Care Program"—Lt. Col. Robert W. Hobson, DC, USA, SGO.

Wednesday, April 27, 10:00-10:50 A.M., "Personnel Policies"—Col. Edwin H. Smith, Jr., DC, USA, SGO.

Wednesday, April 27, 11:00-11:50 A.M., "Officer Efficiency Reports"—Capt. Milton A. Lewis, MSC, USA, SGO.

Monday, May 2, 10:00-11:50 A.M., "Plans and Policies of the Dental Corps" and "Discussion of Camps, Post and Station Problems"—Col. Pearson W. Brown, DC, USA, SGO.

Monday, May 2, 1:00-2:50 P.M., "Human Relations"—Dr. Don Carlos Faith, George Washington University.

Thursday, May 5, 1:00-2:50 P.M., "Motivation in Management"—Dr. Don Carlos Faith, George Washington University.

RETIREMENT POINT CREDITS

Reserve Nurses attending the American Nurse Association's convention in Miami Beach, Florida, May 2-6, may earn up to five credit points for retirement. One point for each day except May 6th will be credited by properly registering for the points.

COLONEL NURSE CORPS RESERVE

The first Army Nurse Corps Reserve officer to be promoted to full colonel's rank is Colonel Edythe Turner, ANC, recently Chief Nurse at Tripler Army Hospital but now stationed at Brooke General Hospital, Fort Sam Houston, Texas. She has been on active duty since 1942 and during World War II was Chief Nurse at the 306th General Hospital in Europe.

PERSONAL NOTE

Colonel Rollin L. Bauchspies who recently retired from the Army is now Director, Health Services, Connecticut State Prisons. His address is Box 24, Wethersfield, Conn.

Doctor Bauchspies served more than thirty years in the Army Medical Corps and many of these years were spent as a field soldier. He has an extensive record of duty with combat troops in Africa and Europe during World War II, and in Korea during the Korean Conflict. The medical service at bloody Anzio in 1944 when he was Corps Surgeon is recorded by him in "The Courageous Medics of Anzio," MILITARY MEDICINE, Volume 122 (Jan.-June, 1958).

TO INSTRUCT IN TAIWAN

Lt. Colonel Frank W. Chorpenning, MSC, Chief of Clinical Pathology and Scientific Director of the Blood Bank at Brooke General Hospital, Fort Sam Houston, Texas, will spend about three months with the Nationalist Chinese Army in Taiwan conducting a course in blood banking.

Colonel Chorpenning who has been in the Army since 1940 was awarded the Typhus Commission Medal for work during the 1946 Typhus Epidemic in Japan and was one of the early workers using Treponemal Immobilization as a more specific test for aid in the diagnosis of syphilis. In recent years his work has been mainly in the field of immunohematology and blood banking.

Navy

Surgeon General—REAR ADM. BARTHOLOMEW W. HOGAN

Deputy Suregon General—REAR ADM. EDWARD C. KENNEY

ASSIGNMENTS TO BUMED

Captain Sidney D. Bond, Jr., MC, USN, has been assigned as Head, Medical Corps Training Section, Bureau of Medicine and Surgery.

Captain Henry C. Hunley, Jr., MC, USN, is the new Deputy Director of the Aviation Medicine Operations Division.

Captain Robert E. Walsh, MC, USN, is now Head, Proceurement Branch, Physical Qualifications and Medical Records Division.

Lieutenant Daniel A. Brandon, MSC, USN, has assumed duties in the Bureau of Medicine and Surgery as Head, Maintenance Section, Planning Division.

QUALIFICATIONS FOR RESERVE NURSE CORPS

The professional qualifications for appointment of Nurse Corps officers, U. S.

Naval Reserve, have been revised to insure that all officers recommended for appointment will be of such age that their active service, including prior military service, will equal not less than 20 years upon reaching the age of 55.

The present qualifications for appointment in the various grades are:

Ensign—Age 20 through 28

Professional experience not required.

Those applicants having a baccalaureate degree in nursing or a field allied to nursing will be granted six months precedence in grade upon appointment, thereby providing eligibility for their being considered for promotion to lieutenant (junior grade) after serving on active duty for 12 months.

Lieutenant (junior grade)—Age 21 through 32

Three years of appropriate professional experience, OR, Two years of appropriate professional experience, plus a minimum of 30 semester hours credit toward a baccalaureate degree in nursing or a field allied to nursing, OR, Two years of appropriate professional experience, plus qualification by examination as a nurse anesthetist by the American Association of Nurse Anesthetists, OR, 18 months of appropriate professional experience, plus a baccalaureate degree in nursing or a field allied to nursing, OR, One year of appropriate professional experience, plus a masters degree in nursing or a field allied to nursing.

Lieutenant (senior grade)—Age 25 through 34

Five years of appropriate professional experience, plus a baccalaureate degree in nursing or a field allied to nursing, OR, Four years of appropriate professional experience, plus a masters degree in nursing or a field allied to nursing.

RETIRED

The following officers of the Medical Department of the Navy were recently retired: Dental Corps—Capt. Benjamin W. Oesterling after more than 23 years of service; Nurse Corps—Commander Thelma L. Feezor, after more than 22 years active service; Medical Service Corps—Lieutenant Commanders David J. Nevens and John F. Rushworth, both having completed more than 30 years active duty.

CONFERENCE ON BURNS

An International Conference on Burns will be held at the National Naval Medical Center, Bethesda, Maryland, during September. It is expected that there will be about 20 foreign and 100 American participants. The exact date has not yet been set.

HANDBOOK

Handbook of the Hospital Corps, U. S. Navy, is available on a subscription basis from the Superintendent of Documents, Government Printing Office, Washington, D.C. The price is $12.50 domestic and $12.50 if mailed to a foreign address.

This handbook has been completely revised. There will be a looseleaf binder and approximately 17 chapters with separators furnished. The chapters will not necessarily appear in numerical order.

SILVER ANNIVERSARY

The U. S. Naval Hospital, Philadelphia, will mark its 25th anniversary on April 12. This hospital was the first of the Navy's "sky-scraper" type and was commissioned in 1935.

Air Force

Surgeon General—MAJ. GEN. OLIVER K. NIESS

Deputy Surg. Gen.—BRIG. GEN. JOHN K. CULLEN

TEST RUN OF SPACE CABIN SIMULATOR

Two volunteers, Technical Sergeants William W. Henderson and Hobart M. Craft, of the U. S. Air Force, recently spent twelve days in the Space Cabin Simulator which was previously described in this journal. The cabin is located at the Aerospace Medi-

cal Center, Brooks Air Force Base, Texas.

Twelve days is a long time to be confined to an eight foot high and twelve foot long cabin. It would be a long time if this cabin were in the mountains. But added to the confinement in the small space is the fact that there is no contact with the outside except a TV. We admit that this would be helpful. For those who might have a special study project an intensive study period of that length of time should be extremely profitable. Without some definite program life of this sort could be terribly monotonous. And this is one of the big factors that will have to be overcome when man goes in for prolonged space travel.

RETIRED

Colonel Robert J. Benford, USAF, MC, who has been editor of the *Armed Forces Medical Journal* and *Aerospace Medicine* retired from active military service on February 28. He is also known as the author of *Doctors of the Sky,* the Story of the Aero Medical Association.

Doctor Benford has joined the Pharmaceutical Manufacturers Association as Director of Medical Relations. The offices of that association are located at 1411 K Street, NW, Washington 5, D.C.

Public Health Service

Surgeon General—LEROY E. BURNEY, M.D.
Deputy Surg. Gen.—JOHN D. PORTERFIELD, M.D.

STATISTICS ON MORTALITY

The 1958 statistics on mortality recently released by the Public Health Service showed that the number of deaths was 1,647,886 or 9.5 per 1,000 population. In 1957 the rate was 9.6 per 1,000.

The number and rates per 100,000 population for each of the four leading causes of death in 1958 given are:

	Number	*Rate*
Heart disease	637,246	367.9
Malignant neoplasms or cancer	254,426	146.9
Vascular lesions (chiefly strokes)	190,758	110.1
Accidents, all forms	90,604	52.3
Motor-vehicle	36,981	21.3
Other	53,623	31.0

Chiefly as a result of the influenza epidemic of 1957-58, the toll of deaths from influenza and pneumonia remained high in 1958—57,439 deaths, or a death rate of 33.2 per 100,000 population. The death rate for these conditions in 1958, the second highest in 10 years, was more than 7 percent lower than the rate of 35.8 recorded in 1957.

INFLUENZA

Deaths from influenza and pneumonia increased this past winter. We might ask ourselves now what may the pattern be for next year. It seems that influenza has a habit of increasing its onslaught for several years after the initial attack.

SHORT COURSES FOR NURSES

Intensive training courses in administration, supervision, and teaching are provided at several institutions which have been granted funds for that purpose by the Public Health Service.

The institutions giving the courses are: *Emory University* Atlanta, Ga. (July 11-29), which will provide faculty members of schools of nursing with ways to improve their own teaching skills; *State University of Iowa,* Iowa City (June 13-17), which is for teaching of clinical nursing; *Marquette University,* Milwaukee, Wis. (May 9-14), an intensive course for supervisors; *University of Miami,* Coral Gables, Fla. (June 17-July 22) for improvement of interpersonal nursing skills.

DENTAL ASSISTANT TRAINING

To overcome the growing shortage of dentists by the training of dental assistants is a project of the Division of Dental Resources, Public Health Service. Just how much training should a dental assistant have which will make the assistant of maximum benefit to the dentist. Then in how short a period can that training be given. In other

words how can you get the best qualifications in the minimum amount of time?

To answer some of these problems an educational research project to develop standard training programs for dental assistants has been initiated. No accreditation standards have yet been established by professional dental associations.

The first schools to participate in the new project are Boise (Idaho) Junior College; Montgomery Junior College, Takoma Park, Md., and Kirkman Technical High School, Chattanooga, Tenn.

HEALTH STATISTICS

Chronic Respiratory Conditions—United States (July 1957-June 1958)— is a 32-page booklet (PHS Publ. No. 584-B12) which gives statistics based on data collected in household interviews. Such subjects as asthma-hay fever, chronic sinusitis, chronic bronchitis, and other respiratory diseases are covered giving time lost from work, days in bed, etc. The booklet can be obtained from the Government Printing Office.

LEPTOSPIROSIS BIBLIOGRAPHY

Copies of the bibliography on leptospirosis may be obtained free from the Acquisition Division, National Library of Medicine, Washington 25, D.C.

ST. LAWRENCE SEAWAY PROBLEM

Water pollution problems are presenting themselves on the St. Lawrence Seaway because of the increased number of ships. When the Seaway opens this spring ships will either have to avoid the 100 areas used by communities for obtaining their water supplies or the ships will have to adopt certain safeguards laid down by the Public Health Service in an effort to avoid water pollution.

Here are the methods to be used: Ships can treat their waste material by an approved sewage treatment device, store it in suitable retention tanks until they leave the area, empty it into the port's sanitary sewer system, adopt other methods approved by the Public Health Service, unload garbage on the docks only if there are adequate facilities for handling it.

Veterans Administration

Chief Medical Director—WILLIAM S. MIDDLETON, M.D.

Deputy Chief Med. Dir—R. A. WOLFORD, M.D.

ASSIGNMENT

Dr. Joseph S. Weltman, who has been director of professional services at the Veterans Administration hospital in Lexington, Ky., has been appointed manager of the Veterans Administration Center in Togus, Maine. He succeeds Malcolm Stoddard who retired January 31. Dr. Weltman is a diplomate of the American Board of Neurology and Psychiatry.

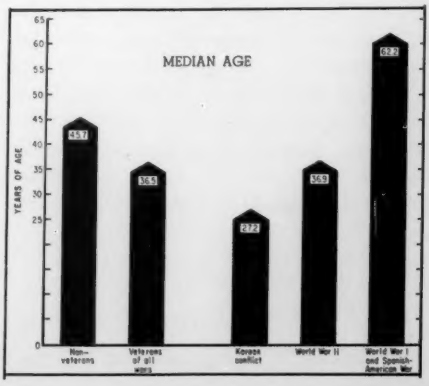
NEW HOSPITAL PLANNED

The Veterans Administration has asked for $75 million to provide money for three new hospitals (Cleveland, Washington, D.C., and Martinez, Calif.) and for the modernization and improvement of existing hospitals throughout the country.

This is expected to be the beginning of a five year plan for construction and modernization of hospitals.

STATISTICS

The following chart shows the median age for males 15 years of age and over by



veteran status. This chart was taken from *Health Statistics—Veterans Health and Medical Care, United States* (July 1957-June 1958), Publication No. 584-C2, USPHS. Copies of this publication may be obtained from the Government Printing Office, Washington, D.C., for 40¢.

DIETITIANS WANTED

The Veterans Administration is recruiting for dietitians for hospitals and outpatient clinics in the United States.

The grades available are GS-5 to GS-10 ($4,040 to $6,505 per year). Applicants will not be required to report for a written test but will be rated on the information sent in to the Executive Secretary, Central Board of U. S. Civil Service Examiners, Veterans Administration, Washington 25, D.C. Card Form 5001-ABC and Form 57, plus a transcript of the applicant's college credits will be required. Applications for the GS-5 grade will be accepted from students enrolled in accredited colleges or universities.

Miscellaneous

INTERNATIONAL HEALTH POLICY COMMITTEE

An Interdepartmental Committee on International Health Policy has been established on a permanent basis by the Department of State.

Secretary of Health, Education, and Welfare, Arthur S. Flemming, has been selected as chairman of the committee. Members are Mr. James W. Riddleberger, Director of the International Cooperation Administration; Mr. George V. Allen, Director of the U.S. Information Agency; Mr. Francis O. Wilcox, Assistant Secretary for International Organization Affairs, Department of State; and Dr. Leroy E. Burney, Surgeon General, U.S. Public Health Service.

FOREIGN MEDICAL SCHOOL GRADUATES

The Educational Council for Foreign Medical Graduates must certify to the proficiency of foreign medical school graduates if a hospital in the United States wants to remain on the approved list for internships and residencies; this to be effective July 1.

The Executive Director of the Council is Dean F. Smiley, M.D., 1710 Orrington Avenue, Evanston, Ill.

MODERN DRUGS

Dr. Austin Smith, President of the Pharmaceutical Manufacturers Association, has stated that modern drugs have helped to add nearly ten years to the lifespan of the average American within the past thirty years. Furthermore the drug industry has spent about $1 billion in research alone since 1947; this from their own enterprise.

In the recent Senate investigations little or nothing was said about the alleviation of suffering, the decreased number of days of sickness, the conquering of certain diseases; no, it has all been price. And while price has been mentioned nothing was said about the increased cost of living, the increased taxes which must be borne by the taxpayers, and numerous other matters which could have been brought out. No, the investigations were for only one purpose, apparently, and that purpose was to gain headlines.

ELECTRICAL ACTIVITY OF BRAIN CELLS

Measuring voltages as small as 10 millionth of a volt is involved in the study of the cortex by the University of Wisconsin Neurophysiology Group, of which Dr. Joseph E. Hind, professor of physiology is a member.

Dr. Hind's special project involves the effect of sound on the auditory cortex. Special microelectrodes and instruments are used by Dr. Hinds who was trained as an electrical engineer. It is not only a problem of these special instruments but also there is the problem of screening out interference from electrical devices. This requires a room screened by copper screening used as a shield.

Knowledge gained by this group is expected to further the understanding of the process of hearing.

ISOTOPE FOR X-RAY

Samarium-153, a low energy short-lived radioisotope developed by General Motors Research Laboratories, is experimentally producing medical radiograms of diagnostic quality and said to be comparable with conventional X-rays.

It is not to be expected that this will supplant the conventional X-ray since the effectiveness is for a week or two after which the isotope must be replaced. However, there appears to be a use where in emergencies it might be extremely difficult to move in conventional equipment, and an apparatus supplied with samarium-153 could be used until other equipment could be brought in.

PLANTS WITH MEDICINAL PROPERTIES

Native plants traditionally used as medicine by southwestern Indians and people of Mexico are being carefully studied by Dr. Mary E. Caldwell, University of Arizona pharmacologist.

She has been primarily interested in plants long used for medicinal purposes, especially those used for treatment of pain. Some 500 different species have been collected and subjected to laboratory procedures. Her interest also lies in the antitumor properties of the plants.

BOOKLETS AVAILABLE

Prevention and Handling of Radiation Emergencies (K-1436) is a 68-page publication now available at $2.00 per copy.

Problems of Infection, Immunity and Allergy in Acute Radiation Sickness (AEC-tr-3767) 133 pp., price $1.50.

The above can be ordered from the Office of Technical Services, Business and Defense Services Administration, U.S. Department of Commerce, Washington 25, D.C.

GOVERNMENT PUBLICATIONS

Atoms for Peace No. Y 3 At 7:2 P31/3	$4.50
Nature of Radioactive Fallout and Effects on Man No. Y 4 At 7/2:F 19/Pt 1	3.75
No. Y 4 At 7/2:F 19/pt 2	2.75
No. Y 4 At 7/2:F19/Index	.40
Roentgens, rads, and Riddles Symposium on Radiation Therapy	3.50
Careers in Atomic Energy No. FS 5.17:119	.25
Basic Civil Defense No. Pr 34.761/4:3-2	.35
First Aid Guide No. A 13.36:F 51/5/958	.25
First Aid for Soldiers No. D 101.20:21-11/2	.35
Housing for Elderly No. HH 2.2:4 81/7	.15
Film Reference Guide for Medicine and Allied Sciences No. FS 2.202: F 48	1.00
Mosquitoes of Medical Importance No. A 1.76:152	2.50
A Look at Juvenile Delinquency Child Bur. Pub. #380/60	.25

For above address Superintendent of Documents, Government Printing Office, Washington 25, D.C.

WORLD HEALTH ORGANIZATION PUBLICATIONS

Prophylactic & Therapeutic Substances (Typhoid, Brucella, Polio, Smallpox, Pertussis, BCG, Rabies) Vol. 20/6/59	$2.00
World Directory of Venereal Disease Treatment Centers at Ports	1.75
Notification of Communicable Diseases (Survey of Legislation)	.70
Ataractic and Hallucinogenic Drugs in Psychiatry TR #152	.60
Malaria Report TR #162	.60
Introduction of Radiation Medicine into Medical Curriculum TR #155	.30
Training of Health Personnel TR #156	.30
Addiction Producing Drugs TR #160	.30
Hospital Laboratory Services TR #161	.30

Above may be obtained from the International Documents Section, Columbia Uni-

versity Press, 2960 Broadway, New York 27, N.Y.

COURSE IN PROSTHETICS AND ORTHOPTICS

New York University has announced a four-year course in prosthetics and orthoptics —the design, fabrication, and fitting of artificial limbs and braces—to start next fall. Further information may be obtained by writing to: Dr. Fishman, Prosthetics Education, New York University, 342 East 26th St., New York 10, N.Y.

AEROSPACE MEDICAL ASSOCIATION MEETING

The 31st Annual Meeting of the Aerospace Medical Association will be held at the Americana Hotel, Miami Beach, Florida, May 9-11.

Colonel James B. Nuttall, USAF, MC, Office of the Surgeon General, U. S. Air Force, Chairman of the Scientific Program Committee has submitted a program, some of the highlights of which are:

The Louis H. Bauer Lecture—Dr. Detlev Bronk, President, National Academy of Sciences

Summary of Electrocardiographic Abnormalities in the Air Force Flying Population—L. E. Lamb, K. H. Averill, Brooks Air Force Base

Cardiovascular Disease and Air Travel—N. D. Sanborn and A. Graybiel, U. S. Naval School of Aviation Medicine

Respiratory Effects of Forward Acceleration—F. W. Zechman, N. S. Chernick, and Alvin S. Hyde, Wright-Patterson Air Force Base

Observations of a Human Experiencing 2G for 24 Hours—C. C. Clark, U. S. Naval Air Development Center

Renal Responses to Heat and Altitude—R. M. Rapp, L. A. Whitehair, and N. P. Clarke, Wright-Patterson Air Force Base

Human Factors in Aerospace Pathology—K. E. Pletcher, Norton Air Force Base

The Response of the Human Retinal Vessels to Positive Pressure Breathing—I. D. Green, P. R. Wagner, and B. F. Burgess, RAF Institute of Aviation Medicine

Radiation Biology—W. F. Grather, Wright-Patterson Air Force Base

Emergency Escape Capsule System—W. F. Mickelson, Wright-Patterson Air Force Base

Space Environment Simulators—O. Schueller, Wright-Patterson Air Force Base

Passenger Emergency Oxygen Bag—A. C. Bryan, W. G. Leach, and R. A. Stubbs, RCAF Institute of Aviation Medicine

Changing Concepts in Physical Standards—F. S. Spiegel, Washington, D.C.

USAF Emergency Escape Experience 1949-1959—K. E. Pletcher and S. E. Neely, Norton Air Force Base

Tolerance of Pure Oxygen Atmospheres—D. M. Keller and J. H. Bates, Brooks Air Force Base

Dr. Ludwig G. Lederer, is president of the Association and Dr. William J. Kennard, is secretary-treasurer. Both are of Washington, D.C. The Headquarters is at the National Airport, Washington, D.C.

CIVIL DEFENSE EXERCISE

On May 7, the University of Pittsburgh Football Stadium will be the site of a civil defense exercise in which 1000 simulated casualties will be featured. It is expected that over 4500 professional and allied medical and health personnel will take part in this exercise.

Further information may be obtained by writing David W. Clare, M.D., Chairman, Disaster Committee, Allegheny County Medical Society, Jenkins Bldg., Pittsburgh 22, Pa.

POSTGRADUATE COURSES

The American College of Physicians presents the following Postgraduate Courses: *Early Detection and Prevention of Disease* (May 9-13), University of Pennsylvania School of Medicine, Philadelphia; *Current Research in Cardiovascular Disease* (May 16-20), National Heart Institute, Bethesda, Md.; *The Hypertensive Diseases* (May 23-26), Massachusetts Memorial Hospitals, Boston; *Internal Medicine* (June 20-24),

Indiana University School of Medicine, Indianapolis.

For further information about these courses write to the American College of Physicians, 4200 Pine St., Philadelphia 4, Pa.

MEDICAL RECORD PERSONNEL

Basic Institutes for Medical Record Personnel have been announced as follows: June 13-17, Rapid City, S.D.; August 15-19, Chicago, Ill.; November 7-11, Miami Beach, Fla. Further information may be obtained by writing to the Chief, Education Program, American Association of Medical Record Librarians, 840 North Lake Shore Drive, Chicago 11, Ill.

CONFERENCE SCHEDULED

The Fifth International Poliomyelitis Conference will be held in Copenhagen, Denmark, July 26-28. For full information write to: The Executive Secretary, International Poliomyelitis Congress, 120 Broadway, New York 5, N.Y.

MEETING

The International Conference on Congenital Malformations will be held in London, July 18-22 under the sponsorship of the National Foundation. Further information may be obtained by writing: Mr. Stanley E. Henwood, Executive Secretary, 120 Broadway, New York, N.Y.

CANCER CONFERENCE

The Fourth National Cancer Conference sponsored by the American Cancer Society and the National Cancer Institute will be held in Minneapolis, September 13-15, 1960. The theme is "Changing Concepts Concerning Cancer." For further information address American Cancer Society, Inc., Medical Affairs Department, 521 West 57th Street, New York 19, N.Y.

MEETING

The American Public Health Association will meet in San Francisco, California Civic Center, October 31-November 4.

FILM ON DIABETES AVAILABLE

"Current Trends in the Clinical Management of Diabetes" is a color, 16-mm. sound film, available for showing to medical groups at no charge for rental. Showing time for the film is 30 minutes. This film as well as those of GRAND ROUNDS can be obtained by contacting the Upjohn Company, Kalamazoo, Michigan.

VOICE OF MEDICINE

Recordings of discussions and interviews taken during national and international medical congresses is the project to be known as "Voice of Medicine." This new program is one of the Excerpta Medical Foundation with offices in the New York Academy of Medicine Building, 2 East 103 Street, New York 29, N.Y. The names of prominent doctors throughout the world appear on the Editorial Advisory Board.

Further information about these recordings can be obtained by addressing the Foundation at the above address.

GRAND ROUNDS

GRAND ROUNDS closed-circuit telecasts will be presented to physicians throughout the country on April 20. The subject is "Gastrointestinal Problems: Medicine or Surgery?"

The broadcast will be from Ohio State University College of Medicine, Columbus, Ohio. Fifteen cities have been selected for the broadcast. Clinical leaders from the United States and Great Britain have been selected to participate.

URINALYSIS SIMPLIFIED

A simple dip-and-read combination strip test for testing glucose, protein, and pH of urine is now being marketed. On one strip similar to a paper match stick these three tests can be made thus reducing the time for a urinalysis to less than thirty seconds.

TEACHING BY TELEPHONE

Shut-ins can have a contact with their classrooms through a telephone service now available. The service provides the oppor-

tunity for the student to hear what is going on in the classroom and to recite when called upon by the teacher. Suprisingly enough this service is said to cost no more than tutoring and in some cases even less. Thus a student who may be confined to his bed for a period of months can continue his education and his contacts with his classmates.

MONEY

A net worth forecast . . . is comparatively easy to make because, unfortunately, most people have very few items to list. Forget about your income and your living expenses. A pipe doesn't care how much water flows through it. All you are interested in (for evaluating your financial program) is what you are catching in the reservoir.

JOHN W. HAZARD,
Success with Your Money,
(Prentice Hall).

ADVERTISING

John Wanamaker, who many people feel, revolutionized department store advertising in the United States, said about his promotion: "Fully half the money I spend on advertising is wasted, but I can never find which half."

Jnl. A.M.A.

Honor Roll

Since the publication of our last list, the following sponsored one or more applicants for membership in the Association:

Maj. Gen. Isidore Ravdin, USAR, Ret.
Lt. Col. H. W. Merrill, MC, (CAP)
Dr. Lorenzo Mercado
Robert W. Logan, M.D.
Capt. Cayetano Muniz, MC, USAR
Col. T. McManus, DC, USA
Col. Sydney Bressler, MC, USAR
Philip Pross, M.D.
Capt. Wilson P. Couch, MC, USAR
Lt. Col. Stanley D. Miroyiannis, MSC, USAR
Lt. Gene P. Meyers (DC) USNR-R
Lt. Col. Joseph Hirsh, MSC, USAR
Major Edward A. Barrett, MC, USAR
Capt. L. T. Pope, MC, USN
Dr. Thomas W. James
Lt. R. H. Donald, MC, USN
Capt. Sidney F. Johnston, MC, USN
Samuel Lieberman, M.D.
W. Compere Basom, M.D.
W. E. Nettleman, M.D.

New Members

Brig. Gen Russell McNellis, VC, USA
Major Gian-Fortunat Hoessly, MC, USAF-R
Capt. Marth Louise Howard, ANS, USAR
Lt. Col. Charles G. McCausland, AUS, Ret.
Capt. William T. Kemmerer, USAF, MC
Col. Tommy Theodore Rose, MSC, USAR
LCdr. Ernest F. Latham, MC, USN
Lt. Raymond E. Toth, MSC, USAF-R
Louis Goldstein
Dr. Vincent J. Daly
Major Robert G. Matheney, VC, USAF-R
Col. Paul C. LeGolvan, MC, USA
Lt. Morris H. Lampert, MC, USNR
Capt. James L. Breen, MC, USA
Lt. Col. Alfred A. Gentilcore, USAFR (MSC)
Capt. Edgar M. Flint, USAFR (MC)
Capt. Seymour Gorelick, MC, USA
David G. Young, Jr., M.D.
Major Rafael Roman Pineda
Col. Ernest Lee Yost, USA, Ret.
Capt. Robert Penington, Jr., MC, USN
Lt. James W. Allaben, USAF, MSC
Lt. M. Sloan, MSC, USN
Lt. Col. Joseph Hirsh, MSC, USAR
Hubert Chan, M.D.
Capt. John Francis McCabe, (MC) USN
Capt. James T. Pearce, USAF-R, MSC
Capt. Rudolph A. Sarka, MSC, USO
Capt. Paul H. Jacobs, USAF, MC
Major Hector Pomales, DC, USAF
LCdr. Paul W. Schrimshaw, Sr., MSC, USN
William Campbell Posey, Jr., M.D.
Cdr. R. O. Peckinpaugh, MC, USN
Dr. M. Grasso
Maj. Christian Rupert Moorhead, MC, USAR
Dr. Francisco Eugenio Fragachan Mirabal

Surg. Harold D. Groves, USPHS-R
LCdr. Calvin F. Wallace, MSC, USN, Ret.
Capt. Carl G. Peterson, Jr., USAF, MC
Major Killian N. Kruse, USAF-R (DC)
Capt. Theodore R. Sadler, MC, USA
Jaime Martinez, M.D.
LCdr. S. G. Kramer, MC, USN
Med. Dir. James T. Hearin, USPHS
Lt. Col. Albert A. Danish, MSC, USAF-R
Lt. Col. Frank M. Hordich, MSC, USAR
Major Serafin M. Dominquez, MC, USAR
Capt. Robert Alan Cole, USAF, MC
Lt. Richard K. Smith, DC, USNR
Capt. George J. Kohut, MC, USN
Capt. Stanley T. Uyeda, DC, USN
Asst. Surg. Robert C. McCullough, USPHS (inact.)
Capt. Lawrence P. Jacobs, DC, USA
LCdr. Ralph K. Zech, MC, USNR-R
Capt. L. J. Elsasser, MSC, USN
Lt. Francis V. Panno, DC, USN
Lt. Merrill Garnett, DC, USNR
Capt. Richard Weymuth Van Driel, USAF-R, DC
Lt. Col Leon Polin, MC, USAR

Deaths

CRAIG, Winchell McK., Rear Admiral, Medical Corps, U. S. Naval Reserve, Retired, died at the Mayo Clinic, February 12. His age was 68. Death was due to pneumonia as a complication of tumor of the brain.

Last fall Doctor Craig was appointed special assistant for health and medical affairs to the Secretary of Health, Education, and Welfare, Arthur S. Flemming, the position which he was holding at the time of his death.

The loss of this distinguished surgeon will be felt for he was in a position in which his vast accumulated experience was extremely valuable to our government that had chosen him as an advisor.

Doctor Craig was born in Washington Court House, Ohio. He had attended Culver Military Academy and graduated from Ohio Wesleyan University in 1915. That university had honored him with the doctor of science degree in 1937, and a position on the Board of Trustees.

His military experience predated World War I when he was an enlisted man in the Indiana Naval Reserve and the Ohio National Guard. During the war he was an enlisted man in the Army Medical Department. He returned to Johns Hopkins Medical School and received his doctor of medicine degree in 1919. During World War II he served with the U. S. Navy Medical Corps and was the first reserve medical officer to attain the rank of Rear Admiral. He was Chief of Surgery at the National Naval Medical Center, Bethesda, Maryland. Later he became director of the graduate training program in the Navy's Bureau of Medicine and Surgery. Relieved from active duty in 1946, he continued as consultant to the Surgeon General of the Navy and also to the Veterans Administration.

Doctor Craig originally intended to become a general surgeon when he went to the Mayo Foundation in 1921, and his training was directed along that line. However, in 1924 he was appointed as first assistant in neurology and his interest was directed to neurosurgery. He became a member of the neurosurgical staff in 1926 and became the head of the Section of Neurologic Surgery in 1946, a position which he held until April 1, 1955. He then became senior consultant until his retirement on July 1, 1957 after 31 years as a member of the Mayo Clinic Staff.

When he entered the field of neurosurgery the problems seemed insurmountable to those in that field. By persistent study and the accumulation of experience Doctor Craig was rewarded and gained an international reputation in that field.

His contributions to medicine are many, being author of over 290 medical papers and chapters in monographs or systems of medicine. In 1957 he was chosen to give the George M. Kober Lecture at Georgetown University. He was an active member of many professional societies and was president of the Association of Military Surgeons of the United States in 1953.

Doctor Craig is survived by his wife, three sons: Captain Winchell McK., Jr., U. S. Navy, James S., and Graham F.; and a daughter, Miss Jean. Interment was in Arlington National Cemetery.

HAUGHWOUT, Frank G., died February 6 at the Washington Hospital Center, Washington, D.C. His age was 82.

A parasitologist, Mr. Haughwout had spent about 30 years in the Far East. In 1915 he became professor of protozoology and parasitology at the University of the Philippines. Two years later he was named chief of the department of parasitology at the Bureau of Science in Manila.

During the Japanese Occupation of the Philippines he and his wife were prisoners. His great knowledge of intestinal diseases was utilized in the POW camp. After liberation he returned to the United States and was a consultant to the Armed Forces Institute of Pathology.

He is survived by his wife, 1851 Columbia Road, N.W., Washington, D.C., a son, and a daughter.

HENRY, Clifford, Captain, Medical Corps, U. S. Naval Reserve, Retired, died November 19, 1959, at St. Camillus Hospital, Wauwatosa, Wisconsin, at the age of 86.

Doctor Henry graduated from the Jefferson Medical College of Philadelphia in 1896. During World War I he served on the USS *Solace* Hospital Ship. After the war he practiced for a number of years in Minneapolis then moved, in 1938, to Kirksville, Missouri, where he made his home until 1959. He was a Life Member of the Association of Military Surgeons of the United States.

After his retirement, Doctor Henry did research work of various religions of the world. "It's Up to You" was published in 1949. This was followed in 1950 by "The Answer." A few years later he prepared a manuscript, "A Brochure on Medical Education and Practice in The Early Christian Era." This has not been published.

He is survived by a son, Clifford T., 2456 North 85th Street, Wauwatosa, Wisconsin, and a daughter who lives in New York City. Interment was in Kirksville, Mo.

MITCHELL, Eleanor L., Lt. Colonel, Army Medical Specialist Corps, Retired, former chief of Army dietitians, died at Denver, Colorado, February 12, of injuries incurred in an automobile accident. Her age was 56.

Colonel Mitchell was a native of Homer, Ohio. She received her A.B. degree in dietetics at Battle Creek (Mich.) College and took her dietetic internship at Walter Reed General Hospital, completing the work in 1927. She was then employed as a civilian dietitian in the Army since there were no provisions at that time for commissioning dietitians. Such provision came in 1943 and she was among the first to be commissioned. She was chief of the Dietitian Section and Assistant Chief, Women's Medical Specialist Corps (now the Army Medical Specialist Corps) from 1948-52. In 1958 she retired from the military service with over thirty years active duty to her credit.

She is survived by her father, a brother, and a sister. Interment was in Arlington National Cemetery.

NELSON, Francis C., Lt. Colonel, MSC, U. S. Army, died February 14 at his home in Falls Church, Va., of a heart attack. He was 44 years old. At the time of his death he was Chief of the Technical Liaison Office in the Surgeon General's Office, a position which he also had in 1948-52. He is survived by his wife and a daughter.

SILER, Joseph F., Colonel, Medical Corps, U. S. Army, Retired, died February 7, at his home, Washington, D.C. He was 84 years old.

Colonel Siler, a native of Orion, Alabama, received his medical degree from the University of Virginia in 1898 after which he served a two year internship at the New York Postgraduate Hospital. In 1900 he entered the Army Medical Service as a contract surgeon, and in 1903 was commissioned in the Regular Army. During World War I he went to France with the American Expeditionary Force and at first was Com-

manding Officer of Base Hospital No. 8. He was ordered to develop the Division of Laboratories for the Forces.

Three times he served in the Philippines. Twice he was Chief of the Preventive Medicine Division of the Office of the Surgeon General of the Army. On another assignment he was Chief Medical Officer of the Panama Canal Zone.

Colonel Siler was always interested in preventive medicine and public health affairs and also tropical medicine. He became internationally known in these fields. He was recognized for his work in hookworm disease, pellagra, dengue, and also for his contribution to the immunization procedures for typhoid fever. He was the founder, a member, and the president of the Gorgas Memorial Institute of Tropical and Preventive Medicine, the Washington office of which is at 1835 Eye Street, N.W. The Institute is in Panama City, Panama.

Among his many honors were the Distinguished Service Medal, the Kober Lecture Award, and the Order of Vasco Nunez deBalboa of the Republic of Panama. He was a member of the American Public Health Association, a Fellow of the American College of Surgeons, and the American College of Physicians. He was a Life Member of the Association of Military Surgeons of the United States.

Colonel Siler is survived by his sister, Mrs. Thomas Frazer of Rome, Georgia. Interment was in Arlington National Cemetery.

NEW YORK CHAPTER MEETING
May 19, 1960

The Annual Spring Meeting of the New York Chapter of the Association of Military Surgeons of the United States will be held at:

Albert Einstein College of Medicine
Bronx Municipal Center
Eastchester Road and Morris Park Avenue
Bronx 6, New York

Thursday, May 19, 1960

SCIENTIFIC PROGRAM—4:30 P.M.
(College of Medicine and Jacobi Hospital)

Department of Anesthesiology
"Basic Principles of Medical Instrumentation"
"Principles and Technics of Pulmonary Resuscitation"
A sixty-foot exhibit on Resuscitation

Division of Clinical Laboratories
Demonstration of automation equipment for processing large numbers of specimens

Department of Surgery
"Extra-corporeal Circulation with Hypothermic Cardiac Arrest" by Robert Goetz, M.D.

Departments of Radiology, Anesthesiology, and Medicine
"Total Body Irradiation: Acute Radiation Syndrome; Effects in Anesthesia; Effects on Autologous Skin Grafts; Effects on Cholesterol Metabolism"

Department of Rehabilitation Medicine
"Rehabilitation After Catastrophic Injuries"

COCKTAILS—DINNER

Following the scientific program there will be cocktails and dinner which will be open to all (by subscription). There will be a guest speaker of prominence.

It is expected that with this "hosting" of the Annual Spring Meeting by the Einstein College of Medicine, a new tradition will be established and each year another Medical School in the New York Metropolitan area will provide facilities and personnel for the presentation of a program of military medical significance. In this manner, the latest developments in laboratory and clinical medicine which bear closely upon their application to civil defense and military medicine can be brought not only to the membership but to the medical community at large.

Members and non-members are urged to attend this important meeting. There is no registration fee but for purposes of planning those expecting to attend please contact Lt. Colonel Joseph Hirsh, Associate Professor of Preventive Medicine at the above address.

Committee:
Col. G. D. Dorman, MC, USAR
Lt. Col. Joseph Hirsh, MSC, USAR
Lt. Cdr. Herbert Volk, MC, USNR

NEW BOOKS

Books May Be Ordered Through The Association

Malformations Congenitales du Cerveau, G. Heuyer, M. Feld, J. Gruner, Masson et Cie, Paris, France. Price unknown.

Electrocardiographie Clinique, Enrique Cabrera, Masson et Cie, Paris, France. Price unknown.

The Surgery of Theodoric, Eldridge Campbell, M.D. and James Coston, M.A., Vol. II, Appleton-Century-Crofts, Inc., New York, N.Y. Price $5.50.

Textbook of Otolaryngology, David D. DeWeese, M.D. and William H. Saunders, M.D., C. V. Mosby Company, St. Louis, Mo. Price $8.75.

Back Pain, John McM. Mennell, M.D. Little, Brown & Co., Boston, Mass. Price $9.50

American Drug Index 1960, Charles O. Wilson, Ph.D., and Tony Everett Jones, Ph.D., J. B. Lippincott Company, Philadelphia, Pa. Price $5.75.

La Fatigue Physiologie—Psychologie et Medecine Sociale, Pierre Bugard, Masson et Cie, Editeurs, Paris, France. Price NF 32,00.

L'Electroretinographie Dynamique en Ophthalmologie, Gaetan E. Jayle, Raoul L. Boyer et Rene L. Camo, Masson et Cie, Editeurs, Paris, France. Price NF 26,00.

Approaches Pathogeniques des Troubles Mentaux, Paul Cossa, Masson et Cie, Editeurs, Paris, France. Price NF 16,00.

Stress and Cellular Function, H. Laborit, M.D., J. B. Lippincott Co., Philadelphia, Pa. Price $7.50.

Ring the Night Bell, Paul B. Magnuson, Little, Brown and Company, Boston, Mass. Price $5.00.

Arthritis: Medical Treatment and Home Care, John H. Bland, M.D., The Macmillan Company, New York, N.Y. Price $4.95.

Medical X-Ray Technique, G. J. Van Der Plaats, The Macmillan Company, New York, N.Y. Price $10.00.

A Practical Guide to General Surgical Management, Julian A. Sterling, M.D., Vantage Press, Inc., New York, N.Y. Price $3.00.

Introduction to Colposcopy, Karl A. Bolten, M.D., Grune & Stratton, Inc., New York, N.Y. Price $7.75.

Company Administration and the Personnel Section, Colonel C. M. Virtue, The Stackpole Company, Harrisburg, Pa. Price $4.50.

Battles and Leaders of the Civil War, Edited by Ned Bradford, The Stackpole Company, Harrisburg, Pa. Price $8.95.

Psychology and the Soldier, Norman Copeland, The Stackpole Company, Harrisburg, Pa. Price $2.00.

Digest of Official Actions 1846-1958, American Medical Association, Chicago, Ill. Price $5.00.

Man in a Cold Environment, Alan C. Burton, Ph.D., and Otto G. Edholm, M.B., B.S., The Williams and Wilkins Co., Baltimore, Md. Price $6.75.

Anatomy Regional and Applied, R. J. Last, M.B., B.S., F.R.C.S., Little, Brown and Company, Boston, Mass. Price $15.00

Cancer and Allied Diseases of Infancy and Childhood, Edited by Irving M. Ariel, M.D., George T. Pack, M.D., Little, Brown and Company, Boston, Mass. Price $22.50.

Essentials of Orthopaedics, Third Edition, Philip Wiles, M.S., (Lond.), F.R.C.S., F.A.C.S., Little, Brown and Company, Boston, Mass. Price $13.00.

Safe Handling of Radioactive Isotopes in Medical Practice, Edith H. Quimby, Sc.D., The Macmillan Company, New York, N.Y. Price $4.50.

New and Nonofficial Drugs 1960, Evaluated by American Medical Association Council on Drugs, J.B. Lippincott Company, Philadelphia 5, Pa. Price $3.35.

Diagnosis and Treatment of Tumors of the Chest, Edited by David M. Spain, M.D., Grune & Stratton, New York, N.Y. Price $14.75.

Leukocyte Antigens and Antibodies, Roy L. Walford, M.D., Grune & Stratton, Inc., New York, N.Y. Price $6.75.

Pharmacology and Therapeutics, Arthur Grollman, Ph.D., M.D., F.A.C.P., Lea & Febiger, Philadelphia, Pa. Price $12.50.

Drugs of Choice 1960-1961, Walter Modell, M.D., Editor, The C. V. Mosby Company, St. Louis, Mo. Price $13.50.

Christopher's Textbook of Surgery, Edited by Loyal Davis, M.D., W. B. Saunders Co., Philadelphia, Pa. Price $17.00.

Functional Anatomy of the Limbs and Back, W. Henry Hollinshead, Ph.D., W. B. Saunders Co., Philadelphia, Pa. Price $9.00.

Current Therapy—1960, Edited by Howard F. Conn, M.D., W. B. Saunders Company, Philadelphia, Pa. Price $12.00.

Back Pain, Diagnosis and Treatment Using Manipulative Techniques, John McM. Mennell, M.D., Little, Brown & Co., Boston, Mass. Price $9.50.

BOOK REVIEWS

PRINCIPLES OF DISABILITY EVALUATION. By Wilmer Cauthorn Smith, M.D. 210 pp. J. B. Lippincott Company, Philadelphia and Montreal. Price $7.00.

This book fills a definite vacuum in our medical literature on the subject of disability evaluation. While it is based on the author's twenty-year experience with the Oregon State Industrial Accident Commission, the principles enunciated are just as applicable for the realistic evaluation of any disability occupational or otherwise.

There is no question of the existing trend in the United States towards more and more disability compensation legislation on all governmental levels. There has also been a concomitant increase in the number of individuals who carry various private insurance policies providing disability compensation. A large and constantly increasing proportion of patients are rightfully entitled nowadays to some form of disability compensation and they expect their physician to provide not only adequate medical care but also reliable advice and counsel in regard to the evaluation of any incapacity or disability, be it total, partial permanent or temporary. The physician is also being called upon more and more frequently to submit a medical report or to give medical testimony in court or before a board.

The average physician can no longer ignore the subject which has become of growing importance. It behooves him, then, not only to have at least a general knowledge of the nature of a compensable disability but also to become qualified to some degree in evaluating a particular disability.

In this book the author discusses the fundamental concept of the nature of disability, the basic principles which govern its evaluation and the sound avenues of approach to the problems inherent in this particular field. He warns the physician against evaluating a disability in terms of money . . . no "cash value" or "price tag" on loss of structure or function. He warns the physician not to attempt to correct what he regards as the inadequacies of compensation provisions by extravagant evaluations or unrealistic recommendations. The author discusses and emphasizes the importance of an adequate medical report "the lifeblood of any compensation system," and presents the principles involved in medical testimony as well as the functions of the medical witness whom he compares to the medical instructor "who is there to explain not to justify."

All in all, this book by Dr. Wilmer Cauthorn Smith is certainly timely, worthwhile, and is highly recommended as a necessary and valuable addition to every physician's medical library.

COL. MAX NAIMARK, MC, USA

THE JOINT AND COMBINED STAFF OFFICER'S MANUAL. By Colonel Jack D. Nicholas, USAF, Colonel George B. Pickett, USA, and Captain William O. Sears, Jr., USN. 272 pp. The Stackpole Company, Harrisburg. Price $4.50.

If you are afflicted with "pointer weave," "five star sweep," or any of the other obscure diseases often associated with staff duty, the diagnosis, care and treatment are to be found within the covers of this book. What, at first glance, appears to be an unofficial field manual for joint and combined staffs turns out to be a delightfully easy to read explanation of those organizations. The authors have set out to give the "how to do it" and "why it's done that way" type of information. They have succeeded with clarity and some humor.

This work briefly traces the development of high level staffs and then describes typical joint and combined staff organizations and functions omitting those details which are transitory or needlessly technical. Most of the book deals with "how to do it" aspects which are concretely useful to a staff officer at any level. Of particular interest are the chapters discussing the characteristics and modus operandi of a good staff officer. One chapter contains the most lucid analysis of strategic decision-making in the national government which I have ever read.

This is a practical day-to-day guide for everyone assigned to a staff. At the same time it provides an easily assimilated orientation for those officers whose technical specialties and normal duties preclude detailed study of staff-work. Medical Service officers will find it to be especially adaptable to their own study programs.

MAJOR SAMUEL L. CROOK, MSC, USA

COLOR ATLAS AND MANAGEMENT OF VASCULAR DISEASE. By William T. Foley, M.D., and Irving S. Wright, M.D. 183 pp., 194 illustrations. Appleton-Century-Crofts, Inc., New York. Price $18.00.

Peripheral Vascular Disease has, on the whole, been neglected by the medical profession despite the vast number of patients who suffer so much from these disorders. Dr. Foley is one of few who

has persistently contained his interest in this subject, and this atlas is the culmination of his conscientious devotion to the subject. Dr. Wright's association and guidance in this endeavor enhances its value immensely.

The authors have followed the Nomenclature of the New York Heart Association and, in so doing, have covered all morbid states affecting arteries, veins, small vessels, and lymphatics. Case illustrations profusely utilized exemplify the morbid alterations caused by various disease states, both common and rare, upon the peripheral circulatory system. Particularly valuable are serial illustrations, many in color, showing the excellent results that can be obtained by conservatism, and common sense management. The truly limited value of sympathectomy is emphasized. Surgery where specifically of value is unhesitatingly recommended.

The writers still reserve a place for thromboangiitis obliterans whose existence is doubted by many. One omission is temporal arteritis, a condition which should occur more frequently as more patients attain the senium. Oddly, some of the newer drugs are not mentioned such as the chlorothiazides in the management of edema, and only heparin and dicumerol are considered among the anticoagulants. Vasodilan probably became available after this text was in press.

Despite the above criticisms, those medical officers interested in peripheral vascular disease, especially those who wish a book of outstanding teaching value, will welcome this atlas. It should be made available in medical libraries as a handy reference.

JULIAN LOVE, M.D.

NAVAL CUSTOMS, TRADITIONS, AND USAGE. 4th Ed. By Vice Admiral Leland P. Lovette, USN (Ret.) 358 pp., illustrated. United States Naval Institute, Annapolis. Price $5.50.

There have been nine reprintings as well as three previous revisions of this book, all which constitutes strong testimony of its merit. In this edition the author has expanded some sections of the work and has added considerable new material. Some of this leads down byways of naval history and tradition, while other parts of it are used for such subjects as a short history of the Navy in the War of 1812, and a very fine account of the U. S. Marine Corps.

The chapters on naval traditions, naval social customs, and on nautical words and naval expressions form much of the heart of the book. There are also appendices from "A" to "U" and "V". These like the postscripts to a ladies' letter contain some of the most interesting information. A "lucky bag" of facts and traditions of the sea; notes on precedence; Army and West Point customs; homeward bound pennants; Neptune parties; social usage abroad and in other navies; and prayers at the launching of naval vessels; to name only a few of the subjects discussed. There are many fine pictures, some from old naval prints, and others from very modern photographs. There are also a number of useful diagrams of quarter deck ceremonies, seating arrangements at official dinners and similar occasions. A good bibliography of the field of naval life and traditions complete this excellent work. It is a book that may be considered almost as necessary to the naval officer as the Navy Regulations and that will furnish much information and entertainment to the non-nautical reader.

CAPT. LOUIS H. RODDIS, MC, USN, Ret.

RING THE NIGHT BELL. The Autobiography of Dr. Paul B. Magnuson; edited by Finley Peter Dunne, Jr. 376 pp. Little, Brown and Company, Boston and Toronto. Price $5.00.

If it is action you want you will want to read "Ring the Night Bell," a story of the life of Dr. Paul Magnuson, Orthopedic Surgeon of Chicago.

Here he tells of his cantankerousness, of his nonconformity, of the problems he had in dealing with people, of some of his patients, of his dealing with bureaucrats; many of these are mentioned by name.

Anyone that got in his way in the pursuit of what he considered right could expect battle. The care of the patient was always uppermost in his mind. His encounters when he was with the Veterans Administration both as Assistant to the Medical Director and as the Medical Director make one admire this doctor. He fought for the patient, that person for whom hospitals are built. He fought for them because he felt that they had not received the care that they should have been given under an earlier Administration.

Undoubtedly cursed by many he is also loved by many for he stood for the best in medical care and was ready to fight to get it.

R. E. B.

WHAT EVERY AIR FORCE WIFE SHOULD KNOW. By Ester Wier, 222 pp. The Stackpole Company, Harrisburg. Price $3.95.

Mrs. Thomas D. White states in the Foreword to this book, "Mrs. Wier's book provides answers to many questions we all have from time to time and I believe it to be—like the cook book on the kitchen shelf—a worthwhile, handy reference to have around the house."

One might call this a textbook for the Air Force wife. This book contains a lot of information that conscientious wives of Air Force men, both officers and enlisted, will want to know. We recommend it to those persons.

A. J. S.

501 QUESTIONS AND ANSWERS IN ANATOMY. By Stanley D. Miroyiannis Ph.D. 332 pp. Vantage Press Inc. New York. Price $5.00.

The author has prepared a book for students of Gross Anatomy and for those who are faced with examinations in anatomy.

This is not a textbook of anatomy; it was not designed to be; there are no illustrations. (The author has wished to keep the cost of the book down and refers the student to standard textbooks of anatomy if illustrations are desired.) The work is a question and answer book designed for those who have studied anatomy and wish to review the subject without scanning a lot of pages of an anatomy book.

An appendix, for the most part of true and false, and multiple choice question is included. No answers are given in this section as the student is expected to dig these out for himself.

Extensive *Selected References* are given for those who wish to further their study.

The objective for which the book has been prepared—a review of anatomy—has been attained.

R. E. B.

THE FLUIDS OF PARENTERAL BODY CAVITIES. By Paul D. Hoeprich, M.D., and John R. Ward, M.D. 98 pp., illust. Grune & Stratton, New York and London. Price $4.75.

Compact and concise, this monograph can be covered handily in one evening's reading. It is an excellent coverage of (1) the serous fluids, including pleural, pericardial and peritoneal, (2) synovial fluid and (3) cerebrospinal fluid. Each type is discussed in detail commencing with the anatomy of the respective cavities and the modes of formation, then circulation and normal physicochemical properties are discussed; finally, technics of collection, specific methods of examination and interpretation of findings are presented.

The applicability of this book is extensive—the intern and internist, general and orthopedic surgeons, and the clinical pathologist may well find new or better means of extracting information from these body fluids after consulting this book which, incidentally, was awarded first prize in the first Modern Medical Monographs Competition.

R. F. DILLON, M.D.

LABORATORY TESTS IN COMMON USE. 2nd Ed. By Solomon Garb, M.D. 185 pp. Springer Publishing Company, Inc., New York. Price $2.50.

This booklet was designed primarily for use by the nurse, graduate as well as student. Its purpose is to present to them the physiological significance of the common laboratory tests. This is accomplished by a brief discussion of each of the tests followed by the procedure for collecting the specimen, several sentences explaining the test method and lastly, by statement of the normal range. Correlation grouping of related tests under specific organ systems, particularly in the "Quick Reference Tables," aid the user immensely.

The value of this edition seems most appropriate to the nursing education and the medical secretary training fields.

R. F. DILLON, M.D.

DOCTORS AND PATIENTS. Edited by Noah D. Fabricant, M.D., 31 contributors. 204 pp. Grune & Stratton, New York and London. Price $5.25.

Exceptionally interesting are the authentic descriptions about unusual patients and rare experiences related in this book by 31 of our nation's best known physicians. These intriguing medical incidents include some related to war, marriage, travel, research and therapy, as well as some of the personal ambitions and frustrations experienced by these well known men of medicine. In some of these real-life happenings readers are carried to the far corners of the earth. "Doctors and Patients" is filled with such remarkable incidents, each one so capably written, that it should appeal greatly, not only to those interested in medicine, but to all who enjoy truly fascinating reading.

COL. H. P. MARVIN, USA, RET.

MODERN DERMATOLOGIC THERAPY. Thomas H. Sternberg, M.D., and Victor D. Newcomer, M.D. 520 pp. McGraw-Hill Book Company, Inc., New York, Toronto, London. Price $10.00.

With ever increasing frequency our colleges and academies of medicine are conducting significant seminars and symposia on highly specialized subjects. Unfortunately in many instances no satisfactory provision can be made for recording and distributing the proceedings of such conferences. McGraw-Hill deserves our special thanks for the present volume, which embodies in compact format the advanced thinking of many outstanding investigators and teachers in dermatology. Delivered recently as post-graduate lectures at U.C.L.A. by more than twenty contributers, the contents of the various chapters have been skillfully edited in order to eliminate the unevenness which often mars such composite efforts. The title itself is misleading, since in every case the discussion of treatment is preceded by an adequate account of clinical features, etiology and pathology. Thus, although this book does not purport to be a systematic presentation of skin diseases it does include all the common entities of greatest interest to the practitioner, as well as many more exotic dermatoses. Increasing awareness of the importance of neurogenic factors in etiology is indicated by numerous references. This book should prove highly rewarding to every physician who is looking for an informal, readable, yet scholarly account of current dermatologic practice in the United States.

LT. COL. M. H. SAFFRON, MC, USAR

EMOTIONAL FORCES IN THE FAMILY. Edited by Samuel Liebman, M.D.; 9 contributors 157 pp. J. B. Lippincott Company, Philadelphia and Montreal. Price $5.00.

This small volume is the fifth in a series of books based on the lectures given at the North Shore Hospital, Winnetka, Illinois. This present report is composed of papers presented by nine different

authors and considers the emotional interrelationships between the patient and the individuals in his environment: his family, his in-laws, relatives, and boss. Each paper is essentially independent of the others, and after each paper is given a list of references. The whole is well indexed.

In the first paper, the following quote is worthy of attention: "A purely intellectual emphasis on orgasm has caused much sorrow in many marriages in which there was at first a belief in great mutual love and satisfaction. As we know from deeper analysis, orgasm is the result of a mutual relationship in which unconscious images from the past may have an inhibiting action." On page fifteen, Dr. Meerloo states: "Love-hunger is a neurotic sickness that may be acted out in various ways and may finally develop into a defensive compulsion to 'love', which really means the need to *be* loved only." In chapter four, Dr. Berman states: "Children function as a barometer reflecting the psychodynamics of family life. Their roles are complex and structured to fulfill their own needs, the needs of the family and the needs of society. Therefore, children exhibit an infinitely complicated interplay of biologic, psychological, family and cultural factors in which the child's role patterning represents a fusion of all these functions." In Chapter seven, Dr. Marmor states: "The frenetic drive towards the acquisition of material goods is seen as one consequence of this psychological void, with the old Protestant Ethic and its emphasis on work, thrift and reward in the hereafter giving way to a new Age-of-Anxiety Ethic, in which leisure, spending and pleasure in the here-and-now have become the goals of living." Finally, in the last chapter, Dr. Kubie states: "However, the search for an answer will not begin until there is a frank initial acknowledgement that the problem exists."

This book discusses the development of the family, the role of the mother, father, and child, the impact of the in-laws, and relatives, the impact of ageing and other social factors, and the disintegrating impact of modern life. It is well worthy of a few hours reading.

CDR. JAMES L. MCCARTNEY (MC) USNR, RET.

SYMPOSIUM ON GLAUCOMA. Edited by William B. Clark, M.D., F.A.C.S. 314 pp. illust. The C. V. Mosby Co., St. Louis. Price $13.50.

The authors of this splendid volume are all noted authorities on the subject of glaucoma.

The first two chapters are written by *Dr. Georgiana Dvorak-Theobald.* Histology of tissues surrounding the angle of the anterior chamber are explained in her usual charming style. Pathology of glaucoma is explained in her superb manner.

The surgical anatomy in relation to glaucoma is discussed by *Dr. Kenneth C. Swan.* One of the outstanding features is the examples of anatomic misunderstanding that contribute to errors in surgical technique. He also writes about the miotic treatment of glaucoma. This stimulating chapter is very thought provoking. He also explains the manner in which anatomic landmarks may be recognized, and discusses the modifications in the surgical techniques of filteration operations.

Dr. Bernard Becker writes about the aqueous production and flow and about its biochemistry. This splendid chapter is based on recent research work and is excellent. He also explains his viewpoints on provocative tests and their effect on tonography. He discusses *diamox* and other inhibitors of aqueous secretion. This is a splendid addition to our knowledge with these new carbonic anhydrase inhibitors. His discussion of miscellaneous topics concerning glaucoma could almost be considered a chapter on factors of generalized diseases and conditions affecting glaucoma.

Dr. W. Morton Grant has an up-to-date explanation of the aqueous production and flow and discusses its physiologic and pathologic aspects. He also writes about tonometry and tonography. This chapter evaluates the various steps in the evolution of tonometry and tonography methods.

Dr. Lorenz Zimmerman limits his vast knowledge of pathology of glaucoma to merely writing the chapter on a product of recent research work. This chapter deals with the presence of hyaluronidase-sensitive acid mucopolysaccharide in the trabecula and iris.

Dr. Harold G. Scheie in his chapter on gonioscopy not only brings us up-to-date on everything that is known about gonioscopy, but gives us the benefit of his vast experience with this field of diagnosis in glaucoma. He also writes about the treatment of chronic simple wide-angle glaucoma.

Dr. A. Edward Maumenee classifies glaucoma. This is an improved classification. For years we have been improving the classification of glaucoma. Now we have a classification that will probably not require revision for some time, because this classification makes use of all of the knowledge about the character of glaucoma. In another chapter on medical control, he explains the discoveries that have been made by many ophthalmologists. He also discusses the surgery for congenital glaucoma.

Dr. Joseph S. Haas has written brilliant chapters on perimetry, on clinical manifestations, and on diagnostic and provocative tests. His conservative approach to the subject of diagnostic and provocative tests is appreciated by many ophthalmologists. Further in the book, the chapter of angle-closure is written. The grouping of surgical chapters makes this book, the chapter of angle-closure is written. The group of surgical chapters makes this symposium on glaucoma not only a textbook about the etiology and diagnosis of glaucoma, but it also becomes a manual of the eye surgery of glaucoma.

The last chapter in the book deals with the round table discussions. The participants in the round table discussion included the editor, Dr. William B. Clark, the writers of the aforementioned chapters, and in addition Dr. James H. Allen, and Dr. George M. Haik, and a number of other able eye surgeons and students of glaucoma.

The associate editor Joe M. Carmichael, M.S.J. used his journalistic talents very well in converting the transactions of the New Orleans Academy of Ophthalmology (6th Symposium on Glaucoma, 1957) into this splendid textbook.

Every ophthalmologist will enjoy this book.

COL. ROLAND I. PRITIKIN, MC, USAR

A MANUAL OF ANAESTHETIC TECHNIQUES. 2nd Ed. By William J. Pryor, F.F.A.R.A.C.S., Anesthetist, Christchurch Hospital, New Zealand. 228 pp., illustrated. The Williams & Wilkins Co., Baltimore, exclusive U. S. agents. Price $7.00.

This book is written primarily as a handbook for the house staff commencing anesthesia. It presents the practical side of anesthesia without unnecessary meanderings into anatomy and physiology.

The coverage is broad, ranging from the anesthesia room to the equipment required and from there to the use of this equipment.

Consideration is given to a variety of the more common anesthetic agents and their application.

Attention is given to the special procedures including endoscopy, dental and local anesthesia. The section devoted to anesthesia in children is especially well done.

Throughout the book, the author has adhered to his original purpose in keeping this simple and easily utilized as a quick reference and a practical teaching medium.

ZIPORA BRAUNSCHWEIG, C.R.N.A.

MECHANISMS OF HYPERSENSITIVITY. Henry Ford Hospital International Symposium. Editors: Joseph H. Shaffer, M.D.; Gerald A. LoGrippo, M.D.; and Merrill W. Chase, Ph.D. 65 contributors. 754 pp., illustrated. Little, Brown and Company, Boston and Toronto. Price $18.50.

This volume presents a group of 48 papers contributed by outstanding authorities in the fields of allergy, immunology and dermatology.

The contents are subdivided into I. Heterogeneity of Antibodies, II. Detection of Antibodies in Human Sera, III. Effects of Antibody and of Antigen-Antibody Complexes on Intact Cells and Whole Organisms, IV. Permeability Factors, V. Participation of Complement in Allergic Responses, VI. Auto-Antibodies, VII. Delayed-Type Hypersensitivity Reactions, VIII. Immunologic Unresponsiveness, IX. Tolerance and Rejection of Tissue, X. Hormones and Allergic Responses, XI. The Role of Mycobacteria in Allergic Manifestations, XII. Some Factors Modifying the Response to Allergins, and XIII. Banquet Speech by A. A. Miles, "Are We Too Trigger-Happy?" This volume represents papers contributed by 65 specialists.

As with previous symposia in this series, the editors have made a laudable effort to include a wide variety of topics representing contributions from many recognized authorities in a very broad field.

The most conspicuous efforts have been those investigations which relate *in vivo* antigen-antibody reactions to *in vivo* clinical problems. Cytotoxic effects of serum from lupus erythematosus patients upon leukocytes from normal individuals constitute an outstanding example of the use of specialized techniques, here microcinematography, in studying cellular phenomena.

Histamine, the favorite villain in the allergy picture for years, has been de-emphasized and a new actor, serotonin, appears on the scene as an *agent provocateur*.

Other areas of particular interest are the comparison of transplantation immunity to delayed or tuberculin type hypersensitivity, the postulated existence of autoantibodies heretofore unsuspected, and the interesting but poorly understood phenomenon of immunologic unresponsiveness elicited by excessive amounts of antigen.

This book will be a stimulating and valuable reference work for those engaged in any of the multitudinous aspects of hypersensitivity.

R. E. S.

THE FOOT AND ANKLE. 4th Ed. Philip Lewin, M.D. 612 pp., illust. Lea & Febiger, Philadelphia. Price $14.00.

In this fourth edition on the foot and ankle, the author has retained the excellent general format of previous editions. The anatomy, and physiology of the parts are adequately covered. The deformities and affections which occur in the foot and ankle are systematically covered in a concise logical manner. The section on trauma, gangrene and amputation have been expanded.

New and current concepts of etiology, diagnosis and treatment have replaced older concepts and procedures. The author has stressed conservatism and attempted to standardize therapeutic procedures. The text is well written and easy to read. Duplication and repetition are avoided by inclusion of basic procedures which apply to several conditions in a valuable rewritten appendix. Many of the Illustrations from previous editions have been utilized and some new ones added. Additional illustrations of some of the procedures described would be helpful.

This very fine text is highly recommended for residents in orthopaedics and as a reference text for all those who have a cause for seeing and treating injuries and diseases of the foot and ankle.

COL. JOSEPH W. BATCH, MC, USA

BOOK REVIEWS

ROENTGENS, RADS, AND RIDDLES. A Symposium on Supervoltage Radiation Therapy. Edited by Milton Friedman, M.D., and Elizabeth B. Anderson, AEC. 495 pp., illustrated. U. S. Government Printing Office, Supt., of Documents, Washington, D.C. Price $3.50.

"Roentgens, rads, and Riddles" is a compilation of papers presented at a symposium on Supervoltage Radiation Therapy held at Oak Ridge, Tennessee in July, 1956. Participating in this symposium were 75 radiologists, physicists, and engineers, including representatives of the manufacturers of supervoltage equipment.

At first glance the title might appear puzzling, since it is suggestive of levity, cynicism, or plain bewilderment, but a quick perusal will convince one that this book is not a satirical treatise, that it is packed with valuable information, and that while it does not resolve many of the enigmas of radiation therapy it does place supervoltage irradiation in a much clearer perspective. Numerous and diverse aspects of this mode of therapy are presented and discussed. The book is profusely illustrated, and the drawings and photographs are of excellent quality. The contents of the book are classed under five major headings: (1) Dosage considerations, (2) Apparatus and sources, (3) Principles of clinical supervoltage irradiation, (4) Discussion of case problems, and (5) Special subjects. Most of the discussion of apparatus and sources deals with the design of various Cobalt-60 teletherapy machines and the protection problems connected with their installation. The major part of the book deals with the clinical aspects of supervoltage irradiation.

Throughout the deliberations of the symposium is the constantly recurring theme of the problem of radiation dosimetry, as questions about dosage repeatedly arose. The difficulty of equating the exposure dose (roentgen), the absorbed dose (rad), and the biological effect was stressed, the gaps in our knowledge representing the "Riddles." Nevertheless, the clinical experiences described indicate that some rather well-defined notions about the limitations and potential benefits of supervoltage irradiation are evolving and that supervoltage is an improved tool for radiation therapy, not withstanding its current inability to produce a dramatic improvement in cancer cure rates.

Radiologists and residents in radiology will find this book to be of great practical value in planning and evaluating radiotherapy regimens and in designing the installation of new radiation therapy machines. In an appendix at the end of the book one will find numerous useful isodose patterns and a lengthy bibliography for the student of radiotherapy with special interest in supervoltage and gamma beam teletherapy.

COL. HARRY L. BERMAN, MC, USA

WORLD CONGRESS OF GASTROENTEROLOGY AND 59TH ANNUAL MEETING OF THE AMERICAN GASTROENTEROLOGICAL ASSOCIATION—1958. Two volumes. 1363 pages, illustrated. The Williams & Wilkins Company, Baltimore. Price $20.00.

Under the able editorship of the publications committee of the World Congress of Gastroenterology, and headed by Henry L. Bockus, the many papers from 50 different countries have been arranged in a most practical manner for the benefit of the reader.

The various individual presentations on many differing aspects of gastroenterology have been grouped in the text, so that a world opinion on each subject is present. This becomes quite important in a subject such as the epidemiologic and clinical features of peptic ulcer disease throughout the world.

The reader, if he is a student, can learn more of the knowledge presented at the World Congress by a study of this work than attendance at the World Congress without such a collection and arrangement.

Original contributions from the fifty countries have been carefully grouped as to specific subject, such as "Affections of the pancreas and biliary tract," and "Peptic Ulcer-Epidemiology and Etiology."

Many symposiums were editorially possible and listed under appropriate specific headings. The panel presentations and discussions on bilirubin metabolism and regional enteritis are of current importance.

For those physicians who are interested in the World Congress, the program has been carefully presented, such as the invocation, messages from illustrious guests, officials, and the Pavlov Lecture by Konstantine M. Bykov.

The two volumes contain the latest concepts and ideas on many aspects of gastroenterology from a global standpoint and should be a reference text for every physician.

AUGUSTUS A. HALL, M.D.

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